



Ministry of Agriculture Strategy

2015 - 2019

Preamble

The strategy for the years 2015–2019 was formulated by the Ministry of Agriculture (MoA) using a participatory approach in strategic planning under the framework of the EU funded Agriculture and Rural Development Programme (ARDP).

Ten Technical Working Groups were established in the Ministry in order to conduct this exercise with the facilitation being provided by the ARDP experts. In addition to MoA staff, these groups included representatives of a number of line ministries, institutions, non-governmental organisations, and other public and private stakeholders relevant for the agricultural sector.

MoA's 2015–2019 Strategy was elaborated in three phases. In the first phase, the main orientations of the Lebanese Agricultural Policy were identified. The strategic plan for the Ministry of Agriculture for the next five years was elaborated based on the main orientations in the second phase. During the third phase the draft strategy was formulated, reviewed, presented to the Steering Committee entrusted with the supervision of the whole process, which included MoA and affiliated institutions senior officers, and finally adopted.

In the first two phases, Technical Working Groups members attended a number of workshops animated by the ARDP experts during which subjects were discussed in a spirit of cooperation, responsibility and professionalism, and with high level of constructive participation. The same applies to the third phase: the members of the Steering Committee put many efforts to identify the priorities for the coming five years based on their deep knowledge of the agricultural sector, its capacities, threats, opportunities and challenges.

The mission and vision of the Ministry of Agriculture, the main orientations, achievable objectives, expected results and activities were thoroughly elaborated, which emphasizes the importance and quality of MoA's work with related stakeholders. This certifies that MoA's 2015-2019 strategy reflects the intention of the Ministry of Agriculture to foster the development of the agricultural sector, and is a commitment to develop its capabilities in order to strengthen the management of Lebanese agriculture, achieve its mission and vision and improve public agricultural services to farmers and Lebanese citizens.

The Ministry of Agriculture

ACRONYMS

ARDP	Agriculture and Rural Development Programme
CAS	Central Administration of Statistics
COLIBAC	Lebanese Accreditation Body
ENPARD	European Neighbourhood Programme for Agriculture and Rural Development
ENP	European Neighbourhood Policy
EU	European Union
GAP	Good Agricultural Practice
GDP	Gross Domestic Product
Ha	Hectare
ICARDA	International Centre for Agricultural Research in the Dry Areas
IDAL	Investment Development Authority of Lebanon
IT	Information Technology
Km	Kilometre
LARI	Lebanese Agricultural Research Institute
LBP	Lebanese Pounds
LIBNOR	Lebanese Standards Institution
MoA	Ministry of Agriculture
OMSAR	Office of the Minister of State for the Administrative Reform
SC	Steering Committee
SMS	Short Message Service
SWOT	Strengths, Weaknesses, Opportunities and Threats
TWG	Technical Working Group
USD	United States Dollar

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EXECUTIVE SUMMARY

Agriculture plays an important role in the national economy. Although not among the largest contributors to the national production and wealth, the sector contributes to a small but stable part of the economy. Agriculture accounted for 4 percent of Lebanon's Gross Domestic Product (CAS, 2011) with a yearly budget not exceeding 1 percent of government spending. Agricultural export registered a total USD 730 million earnings, accounting for 19 percent of total exports, whereas total agricultural imports represented 16 percent of total imports (2013).

Through its three interrelated dimensions (economic, social and environmental), the agricultural sector plays a vital role in the management of natural resources and contributes to sustainable development. Furthermore, the improvement of the agriculture sector is a prerequisite to socio-economic stability and environmental conservation. The sector employs 6 percent of the total labour force (2009). Agriculture is a primary source of income and employment in rural areas reaching up to 25 percent of the labour force and representing 80 percent of its GDP. In addition, the development of the sector contributes to decreasing urban sprawl and limiting overutilization of natural resources in response to climate change impacts.

The Major Challenges Facing the Agricultural Sector

- *Modernizing agriculture and increasing its productivity, efficiency and specialization, and ensuring competitiveness of major value chains in light of land fragmentation and small holdings, and weak agricultural and marketing infrastructure;*
- *Upgrading sanitary and phytosanitary standards in conformity with international standards thus facilitating access to foreign markets in view of trade liberalization;*
- *Ensuring availability of adequate and safe food supplies and enhancing food security while reducing the vulnerability to food price volatility;*
- *Encouraging youth to engage in agriculture-related investments, increasing job opportunities and generating income in rural areas, and reducing rural-urban migration in the framework of an integrated rural development approach;*
- *Ensuring sustainable management and use of natural resources (land, forest, water, genetic resources, fisheries and aquaculture resources...) in response to climate change impacts, land degradation, overgrazing, unsuitable cropping patterns, overuse of forest resources, over exploitation of fisheries vulnerable stocks.*

Building on the achievements of the 2010-2014 strategy of the Ministry of Agriculture (MoA) and based on lessons learned from its implementation, the Ministry of Agriculture has developed its new strategy for the period 2015-2019 using a participatory approach. Technical working groups were formed including representatives from relevant MoA technical departments, various line ministries and institutions, non-governmental organizations and other concerned stakeholders. A bottom-up approach was adopted with strategy outcomes and outputs developed by the technical working groups in line with the priorities set by a Steering Committee, which included senior officials from MoA and its affiliated institutions who followed-up and supervised the whole process of strategy formulation.

The Strategy identifies the Ministry of Agriculture's mission as

“to improve the performance of the agricultural sector contributing to the economic, social, environmental and sustainable rural development of Lebanon”.

In addition, it sets the vision as

“MoA adopts the principles of good governance for the development of the agricultural sector in view of ensuring food security including food safety, reducing poverty and rural-urban migration, creating job opportunities, and increasing efficiency and sustainable use of natural resources”.

The general objective of the strategy is to develop the institutional capacities and increase preparedness of the Ministry of Agriculture in order to overcome challenges in the agricultural sector and respond to crises that may arise through partnerships and collaboration among relevant stakeholders.

The strategy specific objectives are three-fold:

- I) To provide safe and quality food;**
- II) To improve the contribution of agriculture to the economic and social development of the country;**
- III) To promote the sustainable management of natural and genetic resources.**

The strategy defines eight main Courses of Action including 30 components and 104 areas of intervention. These are:

Course of Action I: Improve food safety and quality of locally produced and imported products

Proposed actions: formulation of a national food safety policy based on strategic principles for coordinated and harmonized efforts among concerned institutions; establishment of an integrated and comprehensive food safety system (from farm to fork); and provision of safe food from domestic production and imports.

Course of Action II: Increase productivity and competitiveness of the Lebanese agricultural products

Proposed actions: improving the value chains and increasing the value-added for products of plant and animal origin; strengthening sanitary and phytosanitary measures; increasing agricultural exports; enhancing domestic marketing channels; developing national plans for the conservation and expansion of agriculture and irrigated areas; improving legal status of farmers and farmers organizations; providing support to small-scale farmers and producers; and encouraging youth and women to engage in agriculture-related investments.

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

Proposed actions: adopting good governance and promoting sustainable use of forests and pasture lands; improving management of medicinal and aromatic plants and wild fruit trees sectors; promoting investment in the fisheries and aquaculture and improving sustainable management of the sector; and modernizing the irrigation system in Lebanon and encouraging the use of alternative sources of water and energy in agriculture.

Course of Action IV: Strengthening agricultural extension and education

Proposed actions: development of a pluralistic extension system relying on a common vision and integrated approach of education, research and extension in order to meet farmers' needs; promoting partnerships between the public sector, universities, research centres and associations providing extension services; and upgrading of technical agricultural schools to meet market demand.

Course of Action V: Strengthening agricultural research and laboratories

Proposed actions: building and strengthening capacities of the Lebanese Agricultural Research Institute (LARI) laboratories; enhancing agricultural scientific research; and improving biodiversity and genetic resources.

Course of Action VI: Development of the cooperative sector and mutual funds

Proposed actions: improving and strengthening capacities of the General Directorate of Cooperatives; evaluating the status of cooperatives and mutual funds; re-activating the Cooperative Credit Union and the General National Union of Cooperative Associations; and supporting and activating the mutual fund providing farmers insurance against natural disasters.

Course of Action VII: Development of the Ministry of Agriculture capacities

Proposed actions: reinforcing capacities and updating of the organizational structure of MoA and its affiliated institutions (General Directorate of Cooperatives and the Lebanese Agricultural Research Institute); reviewing and updating the existing legislations and regulations governing the sector; developing MoA capacities in negotiation skills; fostering partnerships with various stakeholders from the private and public sectors; and strengthening the capacities of MoA in disaster and crisis risk management.

Course of Action VIII: Responding to climate change impacts

Proposed actions: mainstreaming of the Ministry of Agriculture activities related to climate change; introducing adaptation measures; conducting studies to estimate greenhouse gas emissions from the agricultural sector, land use changes and forestry. This strategy will contribute through its various courses of actions/areas of intervention to reducing impacts of climate change and GHG emissions in the agricultural sector.

The strategy describes a framework for its implementation including a high-level Committee, which will be established at the level MoA, to ensure proper follow-up and supervision. The strategy also identifies the investment requirements for its implementation (in addition to MoA operational costs) to a total of around USD 330 million over five years, distributed as follows:

MoA Strategy Budget:		
-	Legislation, control and inspection	USD 4 million
-	Communication and extension	USD 8 million
-	Research and studies	USD 5 million
-	Capacity development	USD 48 million
-	Development programmes	USD 265 million

On top of the current state budget allocation, the strategy emphasizes the need for additional financial resources for its implementation. These will include increased national budget allocations over the next five years, but also additional funding for to be procured through close collaboration with donors and from other sources.

CHAPTER 1: LEBANESE AGRICULTURAL SECTOR

1. SITUATION OF THE AGRICULTURAL SECTOR

1.1 GENERAL CONTEXT

A) THE IMPORTANCE OF THE AGRICULTURAL SECTOR IN THE LEBANESE ECONOMY

Lebanon is endowed with a strategic location between Europe and the Gulf States and a Mediterranean climate favourable for fruits and vegetables production, along with fertile soils and a relative abundance of water.

According to the Agricultural Census 2010, the total agriculture land area is estimated at 332 000 hectares, of which 231 000 hectares are cultivated (almost half 113 000 ha are irrigated), with an average land holding size of 1.36 ha (1.23 ha for irrigated holdings). The exploitation of these lands moved gradually from a cereal cropping to a cultivation offering higher added value (fruits, vegetables, etc.), resulting in a return per km² higher than in neighbouring countries.

The contribution of the agricultural sector to GDP (at constant prices) decreased from 4.81 in 2007 to 3.85 percent in 2010. However, this contribution increased to 4.04 percent in 2011 owing to the implementation of MoA strategy (Development of the Agriculture Sector Strategy 2010-2014), along with efforts made towards the reorganization of the sector that supported agricultural productivity and increased exports.

Table 1: GDP per activity at constant prices (in billions of LBP)

Description	2007	2008	2009	2010	2011
Gross Domestic Product (GDP)	44 093	48 117	53 075	57 300	58 436
Agriculture and Forestry	1 282	1 160	1 215	1 334	1 469
<i>Annual change</i>	-3.17%	-9.52%	4.74%	9.79%	10.12%
Livestock and livestock product; fishery	841	847	899	871	891
<i>Annual change</i>	11.69%	0.71%	6.14%	-3.11%	2.30%
Total of agriculture production	2 123	2 007	2 114	2 205	2 360
Annual change	2.21%	-5.46%	5.33%	4.30%	7.03%
Percent of GDP	4.81%	4.17%	3.98%	3.85%	4.04%

Source: Central Administration of Statistics (CAS)

The Lebanese agricultural production generated a wealth of LBP 2 123 billion in 2007 and LBP 2 360 billion in 2011, registering an increase of 11 percent in five years, while the National GDP increased by 32.5 percent in the same period.

Lebanon is considered a major food importer, with local production satisfying only 20 percent of domestic consumption. The value of agriculture and food products imports reached a total of LBP 5 173 678 million in 2013 (Table 2), while the total value of agriculture and food products exports amounted to LBP 1 141 994 million with an annual deficit change by 1.77 percent.

Table 2: Agriculture trade balance - agricultural and food products exports and imports (in millions of LBP)

	2010	2011	2012	2013
Agriculture and food products export	816 794	932 379	969 878	1 141 994
<i>Annual change</i>		14.15%	4.02%	17.74%
Agriculture and food products import	4 254 569	4 757 316	4 931 635	5 173 678
<i>Annual change</i>		11.81%	3.66%	4.91%
Agriculture balance	-3 437 775	-3 824 937	-3 961 757	-4 031 684
<i>Annual change</i>		11.26%	3.58%	1.77%

Source: Lebanese Customs

Agriculture and food products exports witnessed a remarkable improvement during the period 2010-2013, registering an increase of 4.02 percent between 2011 and 2012, and reaching 17.74 percent between 2012 and 2013 (Table 2). The slow growth is attributable to the Syrian crisis as 50 percent of the total agricultural products were exported to Syria or through Syria to other Arab countries and the Gulf States (2010) while with only 35 percent were recorded in 2013. The Ministry of Agriculture, in response to this crisis and in collaboration with other institutions, took the initiative in 2013 to open new shipping lines and this led to an increase in agriculture and food products exports.

The annual change in the deficit in trade balance of agricultural and food products registered a decrease during the period 2011 – 2013 due to the increase in exports of agricultural and food products. This decrease reached 3.58 percent between 2011 and 2012 while it stood at 1.77 percent between 2012 and 2013. Nevertheless, Lebanon remains a net importer of food, and this makes the country vulnerable to food and agricultural products price volatility, with a total food import bill of about USD 2.69 billion (LBP 4 032 billion) in 2013.

B) THE SHARE OF AGRICULTURE IN THE NATIONAL BUDGET

On average, the Lebanese budget allocation to the Ministry of Agriculture represents about 0.5 percent of the total public expenditures, which is a very small share as compared to neighbouring countries where it exceeds 5 percent of the national budgets.

Table 3: Ministry of Agriculture annual budget during the past five years (in billions of LBP)

	2009	2010	2011	2012	2013
Annual Budget	41	78	88	100	67
<i>Annual change</i>		+90%	+12.8%	+13.6%	-33%

Source: Ministry of Agriculture Accounting

One of the immediate results of the previous MoA strategy for the period 2010-2014 was the increase of MoA government budget almost three-fold between 2010 and 2012 from LBP 41 billion in 2009 to LBP 100 billion (USD 66.7 million) in 2012 after a steady increase in 2010 (LBP 78 billion) and 2011 (LBP 88 billion).

It is worth mentioning that total public spending on agriculture is not limited to MoA government budget allocations. Various agricultural programmes were adopted and financed by the government since 2011, most important are:

- the Programme for the development of cereals and legumes (wheat, barley, lentils and chick-peas) adopted by Council of Ministers in 2012, managed by the Ministry of Economy and Trade in collaboration with MoA and LARI with an annual budget of LBP 20 to 40 billion;
- The Export Plus Programme, implemented by the Investment Development Agency for Lebanon (IDAL) was reactivated in 2011 with an annual budget of LBP 50 billion;
- The forage and livestock development programme in Lebanon approved by the Council of Ministers in 2012, with a annual budget of LBP 28 billion.

1.2 THE SOCIAL DIMENSION

Agriculture is a major cornerstone in rural development, as it represents a primary source of income and employment in rural areas. It plays an important role in the fight against poverty in these regions, where several experiences from other countries showed that, growth in agricultural GDP has been more effective at reducing poverty compared to that originating from other sectors, thus contributing to social stability. Agriculture is a catalyst for the creation of employment in several related sectors in the rural regions such as rural services, transport, communication, education, tourism, etc.

The agricultural sector in Lebanon accounts for 6 percent of total labour force (2009), with up to 25 percent in rural areas generating 80 percent of their GDP. The 2010 agricultural census showed that there is a total of 170 000 farmers or holders with an average age of 52 years, half of which depends solely on agriculture for their livelihoods. The Lebanese rural population involved in the agriculture sector reached 817 000 people in 2010 with an average household size of five persons per household.

Table 4: Agricultural labour (Agricultural Census 2010)

Number of farmers (holders)	169 512 (8.6% females)
Average age of farmers	52 years (55 for females)
Number of permanent family agricultural labour	165 600
Number of seasonal family agricultural labour	239 000
Number of hired permanent agricultural labour	51 050

Source: Ministry of Agriculture Statistics

Geographically, Lebanon offers a strong diversity where there are 40 different homogeneous regions presenting distinct socio-economic and geopolitical characteristics. The Bekaa and the North of the country cover 67 percent of agricultural land, mostly held by large commercial farms, while the South is rather characterized by small farms mostly in remote areas.

Livestock production is an important sector in rural areas as it represents one of the main activities (especially in the south and north regions of Lebanon that have the highest poverty rate in the country) with 60 percent of farmers depending on dairy products as primary means of subsistence. This activity helps to generate cash

income through the sale of animal products often covering the main resource requirements of food for poor families, but also to employ most of the workforce in rural areas where alternative working opportunities are limited.

Several social challenges remain significant to the agricultural sector in Lebanon. These include:

- Lack of farmer status under the labour act, which does not contain any specific provision for farmers;
- Existence of vulnerable groups (especially youth and **women**) which are especially prone to poverty;
- High youth unemployment (under 24 years) reaching 22.6 percent of the labour force (2004 – index mundi);
- Steady loss of workforce and aging population in rural areas (figures of Index Mundi show that urban dwellers are about 87.2 percent of the total population in 2011, with a net migration rate from rural to urban areas of 83.82 migrants / 1,000 population according to 2014 estimation).

To address these social challenges, **the agricultural sector can offer great potential in terms of employment generation and poverty reduction. It is therefore of utmost importance to address rural and sustainable development priorities while elaborating the agriculture sector policy.**

1.3 THE ENVIRONMENTAL DIMENSION

While Lebanon is characterized by its rich forests, especially the cedars, it is well endowed with water resources in a relatively very arid regional context. The country has a wide variety of agro-climatic zones ranging from subtropical areas to temperate zones which greatly expands the spectrum of production and cultivation techniques. However, the diversity of agro-systems appears to be threatened today.

Agriculture can have a significant impact - positive or negative - on natural resources (water, forests, biodiversity, etc.) and on the environment in general depending on agricultural practices used, the techniques applied to agriculture, and the extent to which sustainable development principles are integrated.

A) FORESTS

Today, forests cover 13 percent of the territory with only 7 percent if we account for only the dense forests, in which the canopy occupies at least 60 percent of the surface. Forest dominates especially on the western slopes of Mount Lebanon thanks to the higher humidity that prevails in these regions. Pine, oak and cedar forests are the main species in altitude. On the east side and the dry Anti-Lebanon, there are compartments of juniper and oak. The South is the most depleted forest region, probably because of its topography which facilitated the clearing.

The forest area declined by about 35 percent especially in North Lebanon and Mount Lebanon. This loss of forest cover, which is the cause of landslides with disastrous environmental, economic and social effects, is due to several factors: urban sprawl, rising energy prices forcing people living in altitude to find alternative solutions such as wood for heating during the winter, and forest fires.

Several laws have been adopted providing for the establishment of seven natural reserves. This is a major step forward towards the protection of forest areas facing urbanization and other human activities, and a tool to enhance the natural and historical heritage and develop the local community.

B) PASTURES

Good management of pasturelands reduces the effects of fires and the risk of fire spread, and contributes to the conservation of biodiversity and forests. The means of control, monitoring and enforcement of the Forest Code of 1949 that specifies how to use the land for grazing and organizes the movement of cattle in the forests are inadequate and unsuitable for the Lebanese context, hence the need for its review and update.

C) WATER

Average annual precipitations can reach over 1 000 mm on the western slopes of Mount Lebanon, feeding a river system combining rich streams and groundwater. The net exploitable water potential was estimated to be 2.08 billion cubic meters in 2011, which puts the country above the water stress threshold of 1 000 cubic meters per year per capita. Almost 60 percent of the available water resources is used for agricultural activities. Water management therefore has a very important role to play in agriculture. More than half of the agricultural land of Lebanon is under irrigation.

Despite all this, the water resources are under pressure, like forests. Future forecasting of water balance shows that as from 2015, the balance between demand and availability will clearly weaken, and the share of water used by agriculture will be challenged due to the increasing urban and industrial demand.

2. MOA STRATEGY 2010-2014 FOR THE DEVELOPMENT OF AGRICULTURE

The Ministry of Agriculture is the designated institution for the formulation of the agricultural sector strategic framework and the development of related policies and programmes. MoA is also responsible for the development of the legislative and regulatory frameworks governing the agricultural sector, and for securing infrastructure to facilitate investment, production and marketing operations. In addition, MoA has a primary role in the management of natural resources (agricultural land, irrigation water, forests and forestry, fisheries, rangelands) and in the preparation and implementation of rural development programmes.

In 2010 the Lebanese Ministry of Agriculture formulated an agricultural sector development strategy for five years. This strategy included eight main axes of implementation aiming at increasing competitiveness of the Lebanese agricultural products and fostering agricultural sustainable development. The strategy identified priorities and key areas of intervention for the development of the sector including the mobilization of adequate financial resources, development of an appropriate legislative framework, and the strengthening of the Ministry of Agriculture capacities and extension capabilities. This strategy has accomplished a number of achievements along its different axes as follows:

Axis I – Updating the regulatory/policy framework: A number of legislative texts (laws, decrees, decisions and regulations) have been issued to regulate the handling of the different production inputs such as fertilizers, seeds, agricultural pesticides, veterinary drugs, etc. Food products control, including locally manufactured or imported, has been activated according to international food safety standards in collaboration with various local partners.

Axis II – Developing MoA's new structure and improving coordination with the public, private and civil society sectors: The Ministry of Agriculture's budget has increased and the human capital reinforced where a number of agricultural engineers, veterinarians, technicians, forest guards, chemistry specialists, as well as IT and administrative staff have been recruited. In addition to the execution of some major rehabilitation works and purchase of equipment for MoA laboratories as well as the automation of MoA processes which in turn complemented the capacity building efforts. The communication and coordination were improved amongst MoA staff in central administration and regional centres, and with the private and civil sectors through Sectoral Committees that were formed to assess and develop major agricultural value chains.

Axis III – Upgrading agricultural infrastructure and increasing efficiency of natural resources use: Many agricultural roads planning decrees were accomplished and several road constructions were contracted. A number of studies were conducted, and several hill lakes were constructed in addition to land reclamation activities.

Axis IV – Re-activating agricultural extension services and education: The regional extension centres have increased to a total of 28 distributed all over Lebanon. These centres were staffed and equipped, and the extension agents were trained. The agricultural schools were restructured and their curricula reviewed and unified.

Axis V – Enforcing control over all agricultural products, inputs, forests, fishing, and fisheries (in line with updating the needed regulatory framework): Control of domestic production was re-activated, sanitary and phytosanitary inspection systems were developed in terms of human resources, equipment and training, and surveys were conducted for a number of plant pests and infectious animal diseases including poultry and horses (Glanders). In addition, bee hives were registered, livestock flocks were vaccinated and enumerated, agricultural facilities and processing plants as well as refrigerated cars for milk transportation were inspected and registered. Furthermore, MoA accredited laboratories capacities were developed in terms of human resources, training and technical equipment.

Axis VI – Developing value chains, focusing on better quality, production, marketing and export of agricultural products where several Sectoral Committees were formed for the development of the major value chains. The work of the committees could be summarized as follows:

- **Plant Production:** developing the production of seeds and certified seedlings and rehabilitation and classification of nurseries; introduction of new crops and species; enhancing cultural practices and promoting the use of new technologies in cropping, irrigation, harvesting and post-harvesting; preparing and disseminating integrated pest management programmes for the main crops and pilot a few projects; promoting the organic farming sector; providing wheat and barley seeds and technical support to grain producers through the Programme for the development of cereals and legumes; and establishing the mutual fund providing farmers insurance against natural disasters.
- **Animal production:** developing an integrated programme for farm management; developing the dairy sector; organizing and developing the slaughterhouses; organizing the poultry sector; production of vaccines; organizing the honey production sector and promoting the creation of specialized units with advanced technologies; organizing the fishing and fisheries sector and production of eggs; increasing the local production of fodder, milk, meat, and decreasing the imports of forage concentrates through the Forage and Livestock Development Programme in Lebanon;
- **Agroindustry and marketing:** organizing and developing postharvest handling practices; organizing and developing the packaging and refrigeration facilities; organizing and developing the agroindustry sector;

organizing and developing the wholesale markets in collaboration with concerned stakeholders; launching the organization and development of local and farmers markets; re-activating and developing the Export Plus programme and increasing participation in agricultural fairs, etc.

Axis VII – Establishing a credit scheme for small and medium projects: A protocol was signed and put into practice with a number of banks to provide soft loans to small farmers and to develop the fruit tree sector. This was complemented by providing technical support and training on feasibility studies preparation.

Axis VIII – Conservation of natural resources - Soil, forests, biological diversity, rangelands and pastures, and fisheries: A National Plan for Reforestation was elaborated and implemented, the National Initiative for Reforestation – The 40 Million Trees Programme – has been launched in collaboration with municipalities, and the MoA nurseries were rehabilitated. The National Action Plan to Combat Desertification was implemented as well.

The implementation of the planned actions under the strategy axes has also been reflected in the various interventions executed by MoA in cooperation with several international organizations and donors. This also included the evaluation of the previous MoA Strategy 2010-2014 which was conducted prior to the formulation of this new strategy. This helped benefiting from the lessons learnt using a participatory approach during the whole process of planning and elaboration, which would also be followed throughout the implementation of the agricultural and rural development policies and programmes.

CHAPTER 2: MOA STRATEGY 2015-2019

1. BACKGROUND

The Agriculture and Rural Development Programme (ARDP), funded by the European Union under the framework of the European Neighbourhood Policy (ENP), was launched in 2011 in accordance with the priorities identified by the Ministry of Agriculture's Strategy for 2010-2014. The programme aims at improving the overall performance of the agricultural sector and improving the livelihoods of rural and farming communities to achieve sustainable agriculture and rural development. The specific objectives are: (i) to strengthen the capacity of national institutions to work on a coherent agricultural/rural development vision and to better implement agriculture strategic orientations; and (ii) to support and empower local rural actors (farmers as well as cooperatives) by increasing access to credit and by supporting rural development initiatives consistent with local priorities.

Under the ARDP component "Developing MoA capacities", ARDP experts have formulated the MoA strategy for the period 2015-2019, synthesising and integrating the efforts made by 10 Technical Working Groups comprised of Ministry staff and other relevant partners and stakeholders. A Steering Committee reviewed the strategy formulation process, assuring therefore, the adoption of participatory and bottom-up approaches for defining objectives, priorities, and measures of intervention per each policy priority, building on the lessons learnt during past years of implementation and taking into consideration the recommendations of the evaluation report of the previous MoA 2010-2014 strategy.

2. METHODOLOGY

The methodology for the formulation of MoA's Strategy for 2015-2019 involved two main phases followed by a final phase for articulating the strategy and adopting it. The first phase aimed at identifying the "Main orientations for a Lebanese agricultural policy", while the second phase aimed at setting MoA's strategic plan for the coming five years.

To this end, the Minister of Agriculture established ten Technical Working Groups (TWG) for the elaboration of the MoA strategy 2015-2019 and a Steering Committee to supervise the whole process. The 10 TWGs were formed to cover the following agricultural thematic issues:

- 1- Food Safety and Quality;
- 2- Agricultural Health and Production;
- 3- Animal Health and Production;
- 4- Irrigation and Rural Infrastructure;
- 5- Post-production and Marketing;
- 6- Fishing and Fisheries;
- 7- Forests, Rangelands and Medicinal Plants;
- 8- Cooperatives and Mutual Funds;
- 9- Extension, Education and Research;
- 10- Development of MOA Capacities.

The Steering Committee was chaired by the Director General of Agriculture, and composed of the Director General of Cooperatives, the Director of the Lebanese Agriculture Research Institute, and the President of the Executive Committee of the Green Plan, in addition to the four Directors of MoA's Directorates (Plant Resources, Animal Resources, Rural Development and Natural Resources, and Studies and Coordination).



MoA Strategy 2015-2019 Formulation Phases

2.1 PHASE I: IDENTIFYING THE “MAIN ORIENTATIONS FOR A LEBANESE AGRICULTURAL POLICY”

Phase I was dedicated to the preparation of the situation analysis of the agricultural sector and to the preparation of the “Main Orientations of the Agricultural Policy”, and was carried out according to the following the steps:

- 1) Organizing meetings of the 10 Technical Working Groups: SWOT analysis integrating when applicable the sustainable development components (economic, social and environmental):
 - a. Strengths: factors of internal strengths to be preserved;
 - b. Weaknesses: internal weakness factors to be remedied;
 - c. Opportunities: opportunities among external factors to be seized;
 - d. Threats: external factors of threats to be decreased or neutralised.
- 2) Consolidation of the findings of the various Situational Analyses produced by the different Technical Working Groups, reconciliation and prioritisation of main key-issues in order to define strategic orientations;
- 3) Identification and prioritisation of the Agricultural Policy Courses of Action; and approval by the Steering Committee.

2.2 PHASE II: ELABORATION OF MOA 2015-2019 STRATEGIC ACTION PLAN

Phase II was dedicated to the elaboration of MoA’s 2015-2019 Strategic action plan and related logframe matrices. This document is a five-year plan prioritizing MoA’s interventions in each of the eight courses of action identified during Phase I in order to achieve the strategic objectives, and based on MoA functions and mandate:

legal / legislative / regulatory, extension, control and inspection, research for development, strengthening of infrastructure, direct support, etc.

Phase II also elaborated the strategy components, expected results and actions, performance indicators and targets, and means of verification, in order to develop a strong mechanism of monitoring and evaluation of the strategy implementation.

The steps followed under Phase II were as follows:

- 1) Preparation of Action Planning rapid tools and templates (based on the logframe) to be used by the Technical Working Groups;
- 2) Conducting workshops with the 10 Technical Working Groups to discuss and elaborate MoA strategic interventions in each of the eight courses of action identified in Phase I findings. This phase also included setting up MoA's Mission and Vision, identification of the overall objective and specific objectives along with the related objectively verifiable indicators, sources of verification, associated risks and assumptions, as well as the thematic expected results and specific actions;
- 3) Consolidation of the various Action Plans produced by the different Technical Working Groups in a single MoA Action Plan, which was reviewed, prioritized and adopted by the Steering Committee.

3. SWOT ANALYSIS

The Agricultural sector has witnessed through the past few decades the lack of long-term support policies aiming at the growth of the sector and the development of the rural areas, as well as the lack of priority of food and agriculture sector at national level. This has been translated in reduced public spending on agriculture and consequently low MoA Budgets. In addition to the fact that these are annual Budgets that do not include any long or medium-term vision, burdened by a weak public finance administration, inefficiencies and inadequate expenditure mechanisms. This has been reflected also into a poor infrastructure, weak public sector (structural, organizational, regulatory, etc.), and inadequate law enforcement in inspection and control.

In addition, there are scattered responsibilities and overlapped functions and mandates for a number of institutions, coupled with lack of coordination and cooperation and information sharing among various stakeholders in agriculture (public, private, donors, civil associations, etc.) and absence of any mechanism to share and upscale experiences and success stories at national level.

Additional constraints in the agricultural sector include the low rate of adoption and implementation of sectoral programmes and policies, the lack of comprehensive and integrated vision from production to marketing, the absence of producers' protection/subvention policies (even small farmers), added to the weak implementation of international conventions, treaties and agreements hindering foreign trade and limiting access to new markets.

The poor organization of farmers in cooperatives and associations that should act as a major partner in planning and programming, the absence of farmer's status and their limited financial capacities (access to credits, cash flow, etc.), and the unspecialized labour, are as well all impediments to agricultural sector development.

All these, over and above the sectoral weaknesses discussed later in this chapter, contribute to an increased cost of production compared to the neighbouring countries and trading partners, leading to a decrease in farmers' income and eventually rural exodus, especially among the youth, resulting into aging farming population (farmers' average age 52 years).

External threats include the climate change and its impact on agriculture, and globalisation and trade liberalisation, all demanding new adaptive measures, structural changes and capacity development in the management of the agricultural sector.

Despite all these challenges and constraints facing agricultural, the sector still has a large number of strengths and opportunities enabling its development and growth. In this context, Lebanon is endowed by its particular geographic location, climate and relative water abundance, and has market free economy and liberalised trade, and is signatory of a number of international conventions, treaties and agreements. Lebanon is also an active member in a number of international organisations related to agriculture and food, and rural and agricultural development.

There is a number of national projects and programmes supporting the agricultural sector such as KAFALAT programme that guarantees loans for the small and medium size enterprises of production sectors, export promotion and support programmes by IDAL, etc.

The activation of the Public-Private Partnerships has led to the introduction of new technologies, especially that the Lebanese investor is educated and characterized by the private initiative, increasing therefore the investment opportunities in agriculture even from non-farming communities. Many successful pilot projects could be up-scaled. There is a number of food and agriculture universities and institutes that provide high and specialised technical education and professionals. Other sector opportunities also include the production and marketing high value goods, benefiting from the Quality Indicators such as the Geographic Indicators, through the improvement of the Lebanese agricultural products, and ensuring linkages with the tourism sector.

The following sections summarize, the strengths, weaknesses, opportunities and threats by sub-sector and or theme.

3.1 FOOD SAFETY AND QUALITY

Food safety and quality is a key issue and MoA is one of the concerned administrations in the management of this sector. Many efforts have been made in order to strengthen and enhance MoA's capacities contributing therefore to the provision of safe and nutritious food to Lebanese citizens from both imported and local agricultural and food production.

Indeed, many measures were taken to improve the producers application of good production and manufacturing practices (GAP, GMP, GHP, HACCP, ISO 22000); to activate the control system on local production and imports through adoption and enforcement of a number of technical and regulatory food safety legislations, all in line with *Codex Alimentarius* and the European Food legislations. Further strengths included the establishment of the National Committee for *Codex Alimentarius*, the availability of a number of specialized and qualified laboratories (few are certified ISO 17025) servicing the agricultural sector in general and Food Safety in particular, and the strengthening of the capacities of food controllers and inspectors and provide them with the needed equipment. The Lebanese Standards Institution (LIBNOR) grants the conformity marks related to food safety and quality, in addition to a number international certification bodies active in the field of food quality and safety certification.

The weaknesses in the sector has led to a decrease in consumer confidence in the safety and quality of Lebanese products in local and export markets. This is due also to the absence of national policy for food safety and quality and the weak control capacities along the food chains. The Lebanese legislation lacks a law for food safety, which has been replaced by limited and fragmented legislative and regulatory texts that do not cover the entire food production and handling phases, which is translated in several cases into overlaps and duplications in the mandates among some of the food safety concerned institutions. Additional weaknesses include the failure to adopt a risk based inspection system, the absence of contaminant monitoring programmes that contribute to the identification of intervention priorities in enhancing food safety, the lack of specialised and trained human

resources (controllers and inspectors). The shortage in the specialised and accredited labs adds to the abovementioned weaknesses, as well as the inactivation of the Lebanese Accreditation Body (COLIBAC), the lack of control over the certification bodies, and absence of any emergency plan in relation to food safety issues.

At producer level, weaknesses are related to the lack of food safety and quality standards, limited knowledge of Good Production and Manufacturing Practices especially in small-scale production units, unavailability of skilled labour. In addition, many producers are not registered and accordingly they do not undergo any kind of control, the non-compulsory internal control (regular lab testing...) and record keeping enabling the traceability of the produce. At consumer level, there is a lack of sensitisation programmes on food safety and quality issues resulting in low consumer awareness.

3.2 PLANT HEALTH AND PLANT PRODUCTION

The agricultural sector plays a major role in securing a number of self-sufficient commodities and provides job opportunities and fuel the economy in the rural areas contributing therefore to the social stability in these areas.

Lebanon is endowed by fertile lands and diverse agricultural production, rich in plant genetic resources, and is specialised in some crops and plant products in high demand in Arab traditional markets (Gulf and Near East). Lebanon is signatory to a number of international agreements and conventions, and is a member of international organisations concerned with plant health, biological diversity and genetic resources, which facilitated the implementation of several programmes and projects in support to the agricultural sector.

Agriculture could be a promising sector in Lebanon if production is increased through the expansion of cultivated and irrigated areas, crop intensification, use of new technologies, the production of high value added crops, and use of the Geographic and Quality Indicators. Moreover, it could benefit from the development of the seed (and plant propagation material) sector, and the export to new foreign markets where there is a concentration of Lebanese diaspora. The signed conventions and agreements could be used to facilitate the access to the traditional and other new foreign markets.

Despite all the strengths and opportunities that the sector has, agriculture is facing a number of problems and challenges resulting in a high cost of production and a low competitiveness of the Lebanese agricultural products, where a relative decline of the Lebanese agricultural products position was recorded in the local and export markets. Agricultural lands suffer from small and fragmented holdings, high cost of land, urban sprawl and land use competition, contributing to the reduction of the agricultural area.

At farm level, there is a lack in agricultural planning, irrational use of inputs most of which is imported, use of old agricultural technologies, irrigation with untreated wastewater, weak postharvest management and handling, and difficulty to access new varieties for legal (Intellectual Property rights) and financial constraints.

The agricultural marketing infrastructure is weak for several reasons, including weak organisation of wholesale markets, absence of traceability and failure to use the farm register, variability of production in terms of quality, quantity and source. The limited implementation of the international and regional agreements, and the weak sanitary and phytosanitary measures and weak implementation of international standards are hindering foreign trade and access to new markets, added to the logistical problems such as transportation and the many borders and controls to enter into the Gulf markets. Additional reasons include the strong competition with the neighbouring countries in the local and traditional markets for Lebanese products, and the unstable political and security situation in Syria affecting the land transport of goods to Gulf markets and increasing therefore the cost of export.

On the other hand, the environmental impact resulting from agricultural activities should be addresses, including the increased agricultural wastes, depletion of natural resources (irrigation water, genetic resources, biological

diversity...), the irrational use of agro-chemicals (fertilisers, pesticides) and energy, and the climate change impact resulting from the poor management of natural resources.

3.3 ANIMAL HEALTH AND ANIMAL PRODUCTION

The livestock sector in Lebanon is well known for a number of distinctive products such as Labneh and some cheeses, and it is characterized by the large experience in intensive production, contract farming especially in poultry, and by the institutional capacity in animal disease containment and eradication in case of any emergency. This sector could be developed through the increase in the production of specific products of animal origin, increase in forage production, and innovation in agro-industry processing devising new products with high demand at the local and export markets, helping therefore the export into Gulf markets where the Lebanese diaspora is established.

The sector suffers from several problems including: weak animal health system resulting from the lack of permanent animal health programmes and inadequate application of animal welfare; and insufficient animal health and production laboratories to cope with the sector development. The sector suffers as well from small and fragmented farms and production units; the urban sprawl; irrational use of antibiotics and chemicals; the continuous decrease in rangelands and pastures (area and productivity); and contract farming which in most cases come in favour of traders.

In addition to the above-mentioned problems, there are also some discrepancies in post-production management (collection and marketing), the poor conditions of slaughterhouses in terms of public health and productivity, and the reduced capacity to come-up with new processed products. Export promotion of products of animal origin even of high quality is weak, and there is an absence of traceability and implementation of international standards, which reduces the demand on these products. Furthermore, local food habits do not have a high dependency on the consumption of livestock products (such as fresh milk).

Moreover, the foreseen increase in the prices of forages and inputs will further increase the cost of production, the weak animal health system in Syria (due to the current crisis), is affecting negatively the animal health in Lebanon, and climate change has adverse effects on water availability, pastures and their carrying capacity, and hence productivity and cost of production.

3.4 IRRIGATION AND AGRICULTURAL INFRASTRUCTURE

Lebanon is characterised by the relative abundance of water compared to the neighbouring countries, and the favourable topography increases the water storage capacity through hill lakes and dams. The Government of Lebanon took many initiatives to strengthen the water management including the national water strategy that had among its objectives the increase of irrigated land from 90,000 to 170,000 hectares, and launching the “Canal 800” Litani project to irrigate the South of Lebanon.

New irrigation technologies that increase water use and distribution efficiency at farm level are available in the market. Expertise is also available in hydraulic engineering and high value and low water demand crops (grapes, cherries, etc.). In addition, there is a sewer infrastructure that could collect and treat the wastewater and reuse it in irrigation, as well the possibility to increase groundwater recharge through afforestation.

The sector weaknesses reside in the absence of long-term plans for irrigation water management and development in the agricultural areas and the needed investment in a balanced manner, the limited number of policies and permanent local and national programmes for water management, in particular for irrigation (except the Litani Project and Green Plan), lack of adopting legislations for the establishment and management of water users associations. All these add to a decentralized poor information and lack of information sharing, absence of linkage between research and extension for the dissemination of research results on the adoption of probes

to increase water use efficiency, and weak agricultural extension in particular in rationalisation of water use in irrigation.

At farm level, holdings are small and fragmented which increases relatively the cost of irrigation system setup and hence hinders its establishment. The current irrigation systems are old and inefficient. The farmers are not aware of the value of water and its rational use, which exacerbates the problem of water loss when available free of charge.

Poor wastewater management, treatment and high operation and management costs of treatment plants led to the direct use of untreated wastewater in irrigation, which is posing public health risks and polluting the environment. In addition, the excessive water pumping in several coastal areas has led to seawater intrusion and polluted, low-quality water is inhibiting the use of some new technologies. The climate change and the additional number of residents, due to the massive displacement of refugees from Syria to Lebanon, are contributing to the further depletion of water resources.

3.5 POST-HARVEST HANDLING AND MARKETING

The most important strengths at this stage of production are: the close distances between the production areas and the markets in the cities of Lebanon, which contribute to the provision of good products at relatively low cost of transport; the availability of new post-harvest technologies; and the cooperation public and private sectors to participate in international agricultural trade fairs.

Main obstacles include the poor application of good practices, which restricts maintaining a good and safe final product, and hence hinders its marketability at reasonable prices. This is deriving from insufficient official agricultural extension and education in post-harvest handling and marketing, to weak organisation of wholesale markets and lack of transparency in their transactions, the overlapping control mandates, and lack of direct farmers markets. This is also attributed to the lack of dissemination of marketing information and hence poor agricultural planning, non-activation and organisation of quality indicators, and limited responsibilities of the Chambers of Commerce, Industry and Agriculture in relation to agricultural sector development.

Furthermore, the private sector has a relatively low organised structure at the post-production level, marketing cooperatives are limited, post-harvest management and handling (especially for export) are poor, the postharvest infrastructure is weak, technologies used are not state of the art, traceability is absent and farmers are not used to record keeping. All this led to an increase in post-production loss and hence to a decrease in producers' profit margins.

Additional problems include the high variability of income from agricultural activities leading to market instability, limited farmers' negotiation power, and the large income disparities between producers and traders.

3.6 FISH AND FISHERY

Despite the presence of 44 ports and landing sites all along the 200 Km of Lebanese coast, there are only 6,000 registered fishermen in MoA records who are socially unsecured. The fishery sector has never been among national priorities and programmes, which is translated in a weak governmental support to fishing and aquaculture.

This sector suffers also from a large number of constraints impeding its development, such as the absence of planning and organisation of coastal zones management, and lack of satisfactory sector statistics. In addition, the chaotic deployment of ports and landing sites all along the coast is hindering the management and control, and destructing the habitats through illegal rubbles and constructions, and water pollution is rendering many

areas unsuitable for aquaculture. Furthermore, improper practices in the ports and the maintenance of vessels are adversely affecting the surrounding aquatic environment.

Moreover, unsustainable fishing is practiced using fishing nets with small-sized cells, stocks are overexploited, illegal fishing methods (dynamite, pesticides, etc.) are utilised which is negatively impacting on the sustainability and biological diversity of the resource, and the experience in industrial aquaculture and fishing is poor.

Post-fishing has its own problems. These include the absence of a legal framework for the marketing of fish and aquatic livestock, weak organisation of markets and overlapping control authorities, inadequate post-fishing and production practices (cold storage, transport, etc.), scarcity of fish-oriented food processing, and the absence of economic studies highlighting fish products added value potential and how to exploit it locally.

As far as aquaculture is concerned, there is also a lack of planning and organisation in the management of inland waters further hindering therefore the development of the sector, in addition to the spontaneous establishment of fish farms on the riverbanks, the use of slaughterhouses' wastes as fish feed, and the diversion of their wastes back to the rivers.

The strengths of the sector resides in the existence of a legislative framework and the presence of active fishermen cooperatives and syndicates. In addition, there is a number of projects researching and developing specific aspects of fishing, the availability of research and development centres in the high education institutes (Marine and Fishing Sciences Institute buildings need rehabilitation), and national expertise capable of keeping up with the development of the sector.

Furthermore, the sustainability and conservation of natural resources concepts have started to be adopted by a large number of fishermen with traditional knowledge. There is also an inclination among the young generations to learning and adopting new methods.

On the other hand, the development of the sector and the exploitation of untapped marine stocks in the Lebanese waters, and the development of the local and external markets depends on the cooperation between the public and private sectors, and on identifying means to increase income through the promotion of complementary and support activities such as tourism.

The Ministry of Agriculture has an experience in introducing new species in aquaculture, and there is a number of successful projects that could be replicated, as well as private sector initiatives for the development of aquaculture.

3.7 FORESTS, RANGELANDS AND MEDICINAL PLANTS

The different kind of forests spread over the slopes of the Lebanese mountains are considered as an important natural resource. They are characterized by the richness and diversity of plant genetic resources (including endemic species) a large number of which has an economic value. Furthermore, Lebanon's climatic conditions enables a number of activities aiming for the development of the forestry sector through afforestation and investment in forests and aromatic and medicinal plants.

Throughout the history, forests have secured the various wood and non-wood products needs of the local population. Hence, the civil society and the non-governmental organizations are active in environmental related work, and many villages are aware about the importance of the conservation of green areas. In addition, there is a local expertise in firewood and charcoal production, and a good local community knowledge about the benefits and the importance of medicinal and aromatic plants.

There is a growing demand for forest products such as firewood and charcoal and other wood products, and for non-wood products such as pine seeds, oregano, thyme, sage, honey, etc. The increase in the production of non-

wood products through medicinal and aromatic plants farming projects contributes to the sustainable provision of these products on the one hand and to the conservation of the natural resources on the other.

Regarding plants genetic resources, a national strategy for the management of Genetic Resources for Food and Agriculture and a national strategy for the biodiversity are under elaboration. These resources are kept in the national seed bank in the Lebanese Agricultural Research Institute (LARI), where 40 percent of Lebanon wild plants are preserved, and within the ICARDA (International Centre for Agricultural Research in the Dry Areas) seed bank, where pastures and grain seeds are kept.

The forestry sector suffers from many issues including the dispersion of the forest that does not allow for an effective management, the absence of a comprehensive legislative framework for natural resources management leading to an overlap of powers and responsibilities, and the lack of regional and local land use planning. Moreover, existing legislation is poorly enforced, local authorities are weak in the communal land and natural resources management, information flow among stakeholders and analysis of forest fires is minimal, and there are a few specialized nurseries producing forest seedlings. In addition, there is uncontrolled cutting of trees for firewood and charcoal in the absence of adequate forest management plans, overexploitation and harvesting of economic forest plants, absence of sustainable management of rangelands (overgrazing and lack of protection), lack of forest products' marketing information , and an insufficient number of experts in forests and grasslands.

Other challenges that are adversely affecting this sector include the shift of some farmers to less effort-demanding and more yielding activities than charcoal production and grazing, the decline of grazing areas with the increase of protection sites and afforestation, lack of incentives, the presence of legal and social impediments limiting the investment in grazing and timber production. In addition, it is difficult to invest in forests and control forest fires due to steep slopes that render sites inaccessible, and the excessive protection of some forest ecosystems led to their abandonment, spread of fires, and change in their land use.

3.8 COOPERATIVES AND INSURANCE AGAINST NATURAL DISASTERS

The weakness of cooperative work in Lebanon is affecting negatively the agricultural sector as whole. National and local policies and programmes for the development of cooperative work are absent, leading to a weak public sector support to cooperatives and for insurance against natural disasters at different levels: structural, regulatory and legislative, planning, operational, monitoring and control. There is a large number of inactive agricultural cooperatives, a decrease in the percentage of farmers' enrolment into cooperatives (because of lack of motivation), as well as a decrease in the number of young members. In addition, there is a lack of Cooperative Extension and Services Centres, and cooperatives are unable to obtain investment loans.

Furthermore, farmers lack health insurance, for them and their families, and lack insurance for their properties against accidents and natural disasters. In addition, farmers have a low level of awareness of the risks related to agricultural activity. Although a Mutual Fund for the insurance of the agricultural sector against natural disasters has been established, it is still not operational because its legislative and regulatory frameworks has not been completed, and the memberships is not yet mandatory. On the other hand there is a strong network of banks and insurance companies with high capabilities for assessing needs and intervening in the sector.

The advantages of this sector lie in the large number of agricultural cooperatives and cooperative unions that can be activated and in the continuous support to cooperatives offered by donors and non-governmental organizations. Also, there are some credit schemes such as the small farmers and cooperatives collateral guarantee fund developed by KAFALAT and the European Union. In addition, cooperatives benefit from tax exemptions.

3.9 AGRICULTURAL EXTENSION, EDUCATION AND RESEARCH

Agricultural extension is one of the main functions of the Ministry of Agriculture, and farmers (especially small farmers) expect this type of support from MoA relevant departments. The extension is integrated in the agricultural development triangle also including research and education, all of which are functions of the Ministry of Agriculture and its affiliated institutions. This triangle represents the main link that connects farmers and producers with the technical and research staff and decision makers.

The public agricultural extension service possesses an important infrastructure and good geographical coverage all over the Lebanese agricultural areas. It relies on 28 agricultural centres, 7 agricultural technical schools, and 3 agricultural service centres covering all districts, with the mission to deliver agricultural extension, education and training. These centres, as well as LARI and MoA ICT department can better communicate with the registered farmers through the SMS system established for that purpose. Furthermore, several local and international NGOs, the Chambers of Commerce, Industry and Agriculture, private companies, and universities and research institutions are implementing projects in support to agriculture and delivering a wide range of extension services to farmers and rural communities, from product specific extension to the integrated development extension targeting especially poor rural communities.

The weakness of the public extension system is considered as the key issue impeding the development of the different sectors. The main problems faced by agricultural extension include:

- the absence of long term plans or strategies;
- the unsuitable structure of the Service of Agricultural Education and Extension creating administrative restrictions in communication and coordination with the various technical departments within MoA;
- lack of control or supervision on the extension services delivered by NGOs with changing objectives following donors' priorities, and limited over a specific period of time due to budget constraints, and private companies that respond to the priorities of the private sector companies and the needs of large-scale farmers, with less attention to the specific and diverse needs of small farmers;
- the absence of a cooperation mechanism between research and extension;
- the lack of information and lessons learned, and no up-scaling at national level of the successful experiences;
- the lack of expertise in extension on emerging topics and management of natural resources;
- the limited access to many new agricultural information and technologies;
- some available agricultural information is not based on local applied research.

In addition, lack of human and financial resources and needed equipment at the agricultural centres, staff multiplicity of tasks, lack of specialisation, and limited incentives reduce effectiveness and efficiency of extension related activities. Finally, the large number of small and scattered part-time farmers further complicates the entire extension operations.

As far as agricultural education is concerned, Lebanon has a developed public and private university level education. Agricultural technical education is a public facility affiliated to the General Directorate of Agriculture - Directorate of Studies and Coordination - Agricultural Education and Extension Service, regulated by a number of legislation and laws that specify the curricula elaboration mechanism (which is subject to continuous review), and determines the qualifications of the teaching staff, trainers and specialists. Moreover, an EU funded twinning programme has been launched recently between the Ministry of Agriculture and Minoprio for the strengthening of agricultural technical education. It is worth noting that donors and international organisations showed interest in supporting MoA in this area if there is a clear work plan. Furthermore, Lebanon benefits from the presence of a number of national, private and international agricultural research centres.

Public agricultural technical education suffers from several weaknesses including the lack of interest in this field of education, and consequently agricultural technical schools rules and regulations are under developed, and the budgets of the Ministry of Agriculture did not include specific allocations for these schools. In addition, there are vacant positions in a number of schools, teaching staff capacities have not been developed, and a number of buildings and experimental fields are not suitable or not managed properly. Furthermore, the curricula is poor and it does not comply the new requirements and challenges of the agricultural sector, and does not meet market demands in terms of new specialisations, notwithstanding the absence of agricultural continuous training (for more than 2 months), and the lack of the agricultural research and its linkage to the sector needs.

3.10 MINISTRY OF AGRICULTURE CAPACITY DEVELOPMENT

The Ministry of Agriculture is the Lebanese government agency entrusted with the development of the agricultural sector and the implementation of the national agricultural strategies. MoA has competent staff, and a number of legislative texts which organise and regulate its work. MoA started to apply the principles of good governance through several steps most importantly the involvement of the main stakeholders in decision making via the establishment of Sectoral Committees which comprised in addition to MoA concerned staff, representatives from public and private sector. The Ministry started also to process some administrative transactions electronically on the e-government portal and simplify some of the other procedures, and link all Regional Services and the majority of Agricultural and Forest Centres. MoA is currently working on the development of an integrated Agricultural Management Information System (AMIS), and provision of needed IT and office logistics and equipment. Furthermore, MoA is building an updated statistical database, and a national strategy for the development national statistics has been formulated. MoA is conducting various studies on the agricultural sector. The Ministry of Agriculture is actively present in all districts and provinces through a network of Regional Services, and Agricultural and Forest Centres, in addition to the Central Administration that recently benefited from new staff recruitment.

Despite all these strengths, MoA suffers from a number of weaknesses that hinders its work and reduces its efficiency. These include the inadequacy of the current organisational structure to cope with the sector development, multiple tasks and duties of departments and services particularly in the Agricultural Centres, lack of job descriptions, and insufficient and outdated rules and regulations failing to keep up with current developments. They include also a poor planning and participation in the preparation of the budget as well as rigid rules for budget spending (expenditure control and disbursement mechanism), and lack of specialised positions and increased number of job vacancies. All this leads to a limited absorption capacity in the implementation of developmental projects. In addition, there is no Monitoring and Evaluation mechanism in place for plans, programmes and projects, and there is no evaluation of staff performance nor financial or moral incentive mechanism in place.

The limited specialised technical staff is affecting negatively the performance of some functions in the areas of economic analysis, planning, implementation, negotiation, communication, and resource mobilisation, and in limited participation in the negotiations of agreements and international standards. In addition, MoA lacks an internal audit unit addressing the concepts of risk management, and has no plans nor a unit for the management of natural disasters and their impact on agriculture. The Ministry has no system for human resources management, nor continuous training programmes for administrative and technical staff, lacks an integrated agricultural statistical system, and there are no plans for communications and visibility.

Nonetheless, MoA could benefit from available opportunities to build its capacities such as the OMSAR (Office of the Minister of State for the Administrative Reform) programmes on good governance and e-government, and donors and international organisations' willingness to support financially, technically and technologically. MoA could benefit also from the ratified agreements with the trading partners.

4. STRATEGIC PLAN FOR 2015 – 2019

The first phase of strategic planning was concluded with the integration of the SWOT analysis results and the identification of priorities and key issues. This was followed by setting a general Lebanese Agriculture policy orientation and the definition of the mission and vision of the Ministry of Agriculture and summarising the key issues into eight main Courses of Action, each entailing a number of areas of intervention.

The general Lebanese Agriculture policy orientation was defined as follows: **Strengthening the food security and the sustainable agricultural and rural development through improving the productivity, the provision of safe food, increasing the contribution of agriculture in the Lebanese GDP, reducing immigration and rural exodus, raising agricultural awareness and sustainable use of natural and genetic resources.**

The Mission and Vision of the Ministry of Agriculture as well as the eight Courses of Action and their related areas of interventions are detailed in the following sections.

4.1 MISSION AND VISION OF THE MINISTRY OF AGRICULTURE

Mission:

“to improve the performance of the agricultural sector contributing to the economic, social, environmental and sustainable rural development of Lebanon”.

Vision:

“MoA adopts the principles of good governance for the development of the agricultural sector in view of ensuring food security including food safety, reducing poverty and rural-urban migration, creating job opportunities, and increasing efficiency and sustainable use of natural resources”.

4.2 THE OBJECTIVES FOR THE COMING FIVE YEARS

The general objective of the Ministry of Agriculture for the years 2015–2019 is to develop the institutional capacities and increase its preparedness in order to overcome challenges in the agricultural sector and respond to crises that may arise through partnerships and collaboration among relevant stakeholders, through three specific objectives:

- I) To provide safe and quality food;
- II) To improve the contribution of agriculture to the economic and social development of the country;
- III) To promote the sustainable management of natural and genetic resources.

The Ministry of Agriculture expects to contribute to a number of results through the implementation of the strategy until 2019, namely:

1. At the level of the agricultural sector:
 - Increase public expenditure on agriculture to 0.7 percent of the total national expenditure in 2019 (0.5 percent in 2011);
 - Increase the contribution of agriculture to the GDP of Lebanon to 6 percent in 2019 (4 percent in 2011);
 - Increase agricultural production to USD 3 billion in 2019 (USD 2.36 billion in 2011), representing a yearly growth rate of 3.4 percent;

- Reduce the annual deficit in the trade balance between exports and imports of agricultural and food products to 23 percent - 3/13 - in 2019 (20 percent average of the past five years).
2. At the level of the Ministry of Agriculture:
- Decentralization of analysed samples to the regional Labs to 25 percent in 2019 (currently 10 percent);
 - Increase MoA expenditure on the implementation of sustainable management plans of natural resources;
 - Increase in the number of legislative provisions related to the sustainable management of natural resources.
3. At the level of enhancing the socio-economic living conditions:
- Stabilize and prevent the decrease in farmers' income;
 - Increase household income deriving from agricultural and fishing activities in rural areas;
 - Stabilize the rural population;
 - Increase the share of the labour force in agriculture;
 - Decrease the rate of food poisoning cases in hospitals.

4.3 COURSES OF ACTION AND EXPECTED RESULTS

COURSE OF ACTION I: IMPROVE FOOD SAFETY AND QUALITY OF LOCALLY PRODUCED AND IMPORTED PRODUCTS

Three areas of intervention were identified in this course of action, and they are summarised as follows:

- **Contribution to the formulation of a food safety policy** based on strategic principles for coordinated and harmonized efforts among concerned institutions, aiming to create an integrated and comprehensive food safety system (from farm to fork) that responds to both producers and consumer's needs, in order to provide safe and nutritious food of high quality, to develop a cost-effective control system, to enhance access to markets of the Lebanese agricultural and food producers, that adopt the risk analysis approach, and to develop common or shared regulations, standards and certification programmes;
- **Provision of safe and quality food from domestic production** by ensuring sufficient food supply of locally produced food and the development of food safety systems through the Development of the legislative and operational framework of controllers and inspectors, and health juridical control, and get certified by the ISO 17020 for Inspection Management; Strengthening the control and inspection of food facilities; assist in the development of the reference laboratories in order to increase the number of tests and get the needed international accreditation; Development programmes for contaminants monitoring; and Activating the role of MoA to participate in decision-making and the development of international standards for food safety and quality;
- **Provision of safe and quality food from imports** by ensuring the import of safe food products and development of food safety systems, increase the level of related facilities and enhance the infrastructure through Strengthening the legal and operational control and inspection capacities at border points; Get certified by the ISO 17020 for Inspection Management; and Assist in the development of the reference laboratories in order to get the needed international accreditation and increase the number of tests.

The Ministry of Agriculture work in food safety during the next five years is expected to contribute to:

- A decrease in food exports returns due to safety and quality of food by 50 percent in 2019;
- A decrease in the non-conformity ratio of samples of domestic inspection to 60 percent in 2019;
- 25 percent decrease in the level of contaminants in the follow-up monitoring survey analysis in 2019;
- 50 percent of facilities are registered in 2019.

COURSE OF ACTION II: INCREASE PRODUCTIVITY AND COMPETITIVENESS OF THE LEBANESE AGRICULTURAL PRODUCTS

Nine areas of intervention were identified in order to increase the productivity and competitiveness of the Lebanese agricultural products. These are summarized as follows:

- **Improving the value chains and increasing the added value for products of plant origin** through: Strengthening the management of agricultural inputs; Improving the performance of agricultural inputs producers; Implementation of development programmes for a number of agricultural value chains in order to increase their comparative advantage, modernize the Lebanese agriculture and increase its added value, use of new technologies, and increase its efficiency and specialization; and Promoting Good Agricultural Practices (GAPs) through the support of organic farming and quality certification.
- **Improving the value chains and increasing the added value for products of animal origin** through: Strengthening the management of veterinary drugs and feed additives; Development of Animal feed sector; Implementation of development programmes for the dairy and poultry value chains in order to increase their comparative advantage, modernize production, use of new technologies, and increase efficiency and specialization; and Enhance the Good Farm Management and the application of bio-security measures.
- **Strengthening the phytosanitary measures** through: Completing the update of the phytosanitary legislation and management organizational structure based on international standards; Continue improving MoA capacities in pest surveillance; Strengthening MoA capacities in pest eradication; Continue improving the phytosanitary import regulatory system based on international standards; and Continue developing the plant export certification system based on international standards.
- **Strengthening the animal health measures** through: Updating the animal health legislation and management organizational structure based on international standards; Strengthening MoA capacities in animal diseases surveillance, control and containment; and Development of the import/export and animal quarantine system in order to meet with the international standards.
- **Increasing agricultural exports** through:
 - Facilitating the establishment of an Agriculture Export Promotion Committee from the public and private sectors that *i*) works on fostering and promoting the Lebanese agricultural products, while respecting the international regulations, social responsibility and business ethics; and aims to increase the competitiveness and achieve better results in export markets, through the formulation of agricultural export policies and the review of trade (import and export) and marketing policies, supervising their effective implementation; *ii*) coordinates and monitors the development of the different promotional activities related to the export of Lebanese agricultural products; *iii*) takes the lead in setting-up the necessary export incentive instruments; and *iv*) establishes technical working groups to promote the agricultural exports by commodity;

- Improving the supply chain management and decreasing food losses at the level of packinghouses, cold storage and processing facilities, supporting and strengthening the control, updating and enforcing the related legislations, and strengthening the traceability process;
- Repositioning in the traditional markets and opening new markets for the Lebanese agricultural and food products through a market survey, develop an Agricultural Marketing Information System, analysing the level of competitiveness and the promoting export (participation in trade fairs and exhibitions, trade missions, etc.).
- **Enhancing domestic marketing channels** through strengthening the wholesale markets, developing farmers and agricultural cooperatives markets, promoting contract farming, and carrying out advertising campaigns to promote the consumption of Lebanese agricultural products.
- **Developing national plans for the conservation and expansion of agriculture and irrigated areas** in particular for the high-demand crops/varieties in the international markets through: Elaborating a plan to expand agricultural lands and to develop agricultural infrastructure and irrigation at the level of the eight Green Plan regions that comply with the national strategy and promote the exploitation of suitable agricultural areas, land reclamation, agricultural roads construction, conducting studies on the crops/varieties that have a high demand in local and international markets and analysing the competitive advantages of producing it in Lebanon.
- **Improving legal status of farmers and farmers organizations** through the preparation and enactment of a law and its organisational decrees to regulate agricultural and fishing professions.
- **Providing support to small-scale farmers and producers, and encouraging youth and women to engage in agriculture-related investments, bringing new blood in the agricultural sector through: the support of the small and fruit trees farmers soft loans and guarantee fund in collaboration with KAFALAT; and the preparation and dissemination of feasibility studies for a number of agricultural projects.**

The Ministry of Agriculture work under this course of action during the next five years is expected to contribute to the following:

- Increase in agricultural exports (HS1 -10) by 10 percent in 2019 (567,000 tons in 2013);
- Decrease in exports' rejects;
- Increase in the production of broiler chickens to 62 million birds in 2019 (57 million birds in 2013);
- Increase in domestic production of milk and dairy products to 40 percent in 2019 of total domestic consumption (35 percent in 2013);
- Conversion of 25,000 hectares into irrigated agricultural land in 2019;
- **Increase in the number of small farmers, youth and women benefiting from soft loans.**

COURSE OF ACTION III: IMPROVE THE GOOD GOVERNANCE AND SUSTAINABLE USE OF NATURAL RESOURCES

Five areas of intervention were identified in order to strengthen the good governance in the management and the sustainable use of natural resources. These are summarised as follows:

- **Strengthening good management and sustainable use of forests** by assessing the forest resources and strengthening the good governance in forest management through the review, update and enactment/enforcement of legislation in line with the international standards, building the capacities of concerned MoA departments, activating local communities' participation in the management and conservation of forests and reforestation, increasing awareness on the economic and environmental importance of forests; Afforestation and reforestation and support to the national reforestation programme in order to increase the forested area; Protection from risks and pests that threaten forests and

implementation of the forest fire strategy; and Rationalizing the harvest and investment of wood and non-wood forest products.

- **Promoting sustainable investment and management of pasturelands** and building the capacities of the related administrations through: Assessment of rangelands and pastoral plants on a national level, identification of pastures, their forage and carrying capacities, identification of pastoral/grazing systems and pathways, and developing a plan to manage and improve the rangelands (rehabilitation of nurseries to produce pasture seedlings and rehabilitation of existing pastures); and the Promotion of good governance in rangeland management through the review and update and enactment/enforcement of related legislations in line with the international standards, building the capacities of concerned department, fostering local communities participation in the management and conservation of rangelands, and increasing awareness on its economic importance.

- **Improving the management of medicinal and aromatic plants and wild fruit trees sector** through the conservation and production of medicinal and aromatic plants and the rationalisation and control of harvesting and enactment/enforcement of related legislations.

- **Supporting investment in the fisheries and aquaculture and improving sustainable management of the sector** and the implementation of the strategic road map for the development of the sector through: Strengthening the legislative and regulatory framework of fishing and aquaculture; Promoting research; Fisheries development via the support to the modernisation of the fleet, the identification of new fishing areas, delivering extension on new fishing methods, support the replacement of fishing equipment into sustainable equipment, the conservation of the fishing resources by means of prohibiting fishing during specific periods, and activating the role of fishing and forest guards in the enforcement of current legislations; Aquaculture development; and Development of information collection system.

- **Modernizing the irrigation system in Lebanon and promoting the use of alternative sources of water and energy in agriculture** through Increasing irrigation water storage quantity and improvement of its distribution; Using new technologies and raising the irrigation efficiency at farm level; Activating the use of treated wastewater in agriculture; and Promoting the use of renewable energy in agriculture and irrigation.

The Ministry of Agriculture efforts in this course of action during the next five years can be expected to contribute to:

- 5 percent increase in the total forest area by 2019;
- The increase in the quantity and value of forest crops to USD 85 million by 2019 (USD 80 million in 2013);
- The increase in the production of sage and oregano to 185000 Kg by 2019 (175000 Kg in 2013);
- The establishment of an area of forests and rangelands on which a plan for sustainable management is applied;
- The increase in the number of registered fishermen from 6,000 in 2013 to 8,000 by 2019;
- The increase in the quantity of production per effort of fishing;
- The increase in the quantity of production of the aquaculture sector to 9,000 by 2019 (4,500 tons in 2013);
- The increase in the fish and aquatic stock over a period of 10 years;
- The increase in the ratio of conversion to modern irrigation over the total irrigated area by 15 percent in 2019.

COURSE OF ACTION IV: STRENGTHENING AGRICULTURAL EXTENSION AND EDUCATION

Two areas of intervention were identified under this course of action, which are:

- **Development of a pluralistic extension system** with a shared vision and an integrated approach in agricultural education, research and extension, which responds to the technical and information needs of farmers, fosters the partnerships between the public sector and the universities, research institutes, and the civil society organisations delivering extension services, with the public sector providing the general orientation and coordination among stakeholders, and includes all partners in the planning and implementation of extension programmes, and where MoA will guarantee extension services control and quality assurance and their geographical coverage in addition to monitoring and evaluation; and strengthening of the Agricultural Extension Centres through the staff recruitment, technical capacity development and provision with outreach and communication technologies and equipment.

- **Activation of the official technical agricultural education according to market demand** through the Formulation of a policy for the development of the official technical agricultural education; Strengthening the management of agricultural schools by updating the related legislative texts, enhancing the schools infrastructure and equipment, improving the schools management system to be in line with the international standards, training of teaching staff and school directors on the new management system, and training of teaching staff, technicians and trainers; Updating the curriculum by the elaboration of new and updated curricula, the continuation of the update and unification of the school book, the introduction of new specialisation in high demand, and the development of continuous training programmes according to the needs of agricultural areas; and Activating the cooperation between agricultural technical education and training and Lebanese Agricultural Research Institute and the Faculty of Agriculture at the Lebanese University and various other agricultural institutions.

The Ministry of Agriculture work in this course of action during the next five years is expected to contribute to the:

- Increase in the number and topics of producers trainings and their geographical distribution;
- Increase in the number of farmers participating in extension activities;
- Increase in the rate of adoption of extension information;
- Decrease in the rate problem recurrence at the farm level;
- Increase in the percentage of student enrolment in agricultural schools;
- Increase in the rate of graduated over registered students in agricultural schools;
- Increase in the rate of recruitment of students in their respective specialisation.

COURSE OF ACTION V: STRENGTHENING AGRICULTURAL RESEARCH AND LABORATORIES

Three areas of intervention were identified in order to strengthen the agricultural research and laboratories, and they are summarised as follows:

- **Developing and strengthening capacities of the Lebanese Agricultural Research Institute laboratories** through the: Development of food safety laboratories and cooperation with accredited laboratories; Development of agricultural inputs related laboratories and establishment of new ones; Development of plant health laboratories; Improving the control tests of veterinary drugs; Activating the forage laboratory; Strengthening the existing laboratories and establishing new labs for honey testing; and Development of animal health laboratories.

- **Enhancing agricultural scientific research** through: Improving the productivity of sheep and goats by the development of animal breeding centre in Terbol station; Establishing a virus and fungal diseases free mother plot for Lebanese olive varieties; Launching scientific research on varieties suitability; Launching research on irrigation; and Strengthening the early warning system.
- **Improving the conservation of biodiversity and genetic resources** through: Studying the biodiversity in unprotected ecosystems; Strengthening research on biodiversity and plant genetic resources by assessing the plant genetic resources for food and agriculture including the local varieties and wild parents that grow in the different Lebanese regions, and conserving them in the national seed bank, and build the capacities for the regeneration of conserved seeds; and the Conservation and production of seedlings of wild fruit trees and promoting their cultivation.

The Ministry of Agriculture is expecting to achieve in this course of action during the next five years the following:

- Establishment of 4 new operational research stations;
- Increase in the number of tests conducted per year to 150,000 by 2019 (100,000 in 2013);
- Have 8 additional new tests;
- Increase the investment in research by 5 percent yearly (currently USD 2 million).

COURSE OF ACTION VI: DEVELOPMENT OF COOPERATIVE SECTOR AND MUTUAL FUNDS

Four areas of intervention were identified under this course of action:

- **Improving and strengthening the General Directorate of Cooperatives capacities** through strengthening and developing its human, administrative and financial capacities, and enhancing its functions and services.
- **Assessing the status of cooperatives and mutual funds** through the evaluation of cooperatives and mutual funds, and the implementation of the formulated proposals in order to increase efficiency and effectiveness.
- **Re-activating the Cooperative Credit Union and the General National Union of Cooperative Associations** through reinforcing the Union of Cooperative and the National General Union of Cooperative Associations.
- **Supporting and activating the mutual fund for the insurance of agricultural sector against natural disasters** through supporting the Mutual Fund for the insurance of the agricultural sector against the natural disasters and Reviewing and assessing the proposed financial mechanism.

The Ministry of Agriculture work in this course of action during the next five years is expected to contribute to the:

- Increase in the percentage of active agricultural cooperatives to 35 percent of total by 2019 (the current situation is of 25 percent);
- Increase in the percentage of members of agricultural cooperatives to 7 percent of total farmers by 2019 (4.5 percent in 2013);
- Members of the Mutual Fund for the insurance of the agricultural sector against natural disasters represent 10 percent of farmers or agricultural enterprises in the country (the current mode is zero – still not operational).

COURSE OF ACTION VII: DEVELOPMENT OF THE MINISTRY OF AGRICULTURE'S CAPACITIES

Four areas of intervention were identified under this course of action and they are summarised as follows:

- **Updating the organizational structure and reinforcing the role of MoA and its affiliated institutions (General Directorate of Cooperatives and LARI) and updating the existing legislation and regulations governing the agricultural sector and MoA** in order to carry out its tasks and cope with the future challenges through: development of administrative work and simplification of administrative procedures, upgrading financial management, activation of communication and media, strengthening and modernising an integrated system for planning, monitoring and evaluation, risk management and fund raising, upgrading and modernization of IT network and Documentation, and strengthening the agricultural statistics and capacity development in economic research; Development of administrative and financial system, and research at the Lebanese Agricultural Research Institute; Reviewing, updating and adopting new legislation governing the cooperative work; Continue the review and update of the legislation governing the mutual funds work; and Reviewing, updating and adopting new legislation and internal regulation of the General Directorate of Cooperatives.
- **Developing MoA capacities in negotiation skills** through improving coordination with the international organisations and donors in view of elaborating a shared framework; and reinforcing MoA role and participation in the international agreements and conventions in order to improve the foreign trade, and international standard setting.
- **Fostering partnerships with various stakeholders from the private and public sectors** through activating partnerships with the private sector and related administrations including the Sectoral Committees within MoA; and improving coordination with the local partners, municipalities, civil society organisations working in the field of rural and agricultural development.
- **Strengthening MoA capacities in disaster and crises management in agriculture** through elaborating a national response plan, and creating a Disaster and Crises Management Unit;

The Ministry of Agriculture work in this course of action during the next five years is expected to contribute to the following:

- Decrease in MoA's job vacancies (currently 70 percent);
- Decrease in LARI's vacancies to 10 percent by 2019 (currently 30 percent);
- Increase in MoA staff knowledge and skills;
- Increase in MoA Budget;
- Increase in the rate of external funding for MoA's programmes;
- Increase in the rate of satisfaction in MoA's agricultural Services to 50 percent in 2019 (means and speed of execution)
- Increase in the number of bulletins and statistical studies produced;
- Increase in number of beneficiaries of agricultural services;
- Increase in the number of reviewed standards, conventions and policies.

COURSE OF ACTION VII: RESPONDING TO CLIMATE CHANGE IMPACTS

Climate changes have a direct and a significant impact on the agricultural sector and natural resources such as forests, pastures, water and biodiversity. Therefore, the Ministry of Agriculture opted for the introduction of “Responding to climate change impacts” as one of the central courses of action for the next five years. MoA plans to assist the agricultural sector in many areas of intervention to better adapt to the impacts of climate change and to reduce its emissions, mainstream MoA activities related to climate change, introduce the adaptation measures through the various implemented programmes, and conduct a study to estimate the greenhouse gas emissions from the agricultural sector, land use changes and forestry.

5. STEERING AND COORDINATION

5.1 SUPERVISION, MONITORING AND MANAGEMENT

The Lebanese Government is responsible for the implementation and financing of MoA's 2015-2019 Strategy. The Ministry of Agriculture is the entrusted administration for the implementation of the abovementioned strategy. The Minister of Agriculture will establish a Steering Committee (SC) for the follow-up and supervision of the strategy implementation. This Steering Committee will be chaired by the Director General of Agriculture, and includes the Director General of Cooperatives, the Director General – President of Administrative Board of LARI, the Head of the Executive Committee of the Green Plan, in addition to MoA Directorates' Directors (Plant Resources, Animal Resources, Rural Development and Natural Resources, and Studies and Coordination). The Service of Programmes and Developmental Projects will assure the coordination.

Following the signature and the adoption of MoA's 2015-2019 Strategy, the SC will meet on a regular basis and when needed, and can call upon and engage whoever deemed appropriate and necessary from the public and the private sectors.

The Steering Committee will fulfil the following duties:

- Review and approve annual operational plans prepared by the related departments for the implementation of the strategy;
- Review and approve the strategy implementation progress reports prepared by the related departments, including the activities performed under external donors' funded programmes and projects;
- Provide necessary guidance for the good implementation of the strategy and manage the risks that may arise during the execution;
- Mobilise funds and identify financial resources;
- Review and approve the strategy Monitoring and Evaluation reports (the first report in 2 years, and the second 6 months prior to the end of the strategy), provide recommendation related to the planned activities at the level of the strategy objectives and courses of action.

Each MoA Directorate prepares periodic progress reports. The latter will be based on the reports provided by their subsidiary Services, Departments and related programmes and projects that include all the activities and expenditures (planned versus executed) in addition to the problems and challenges encountered and future plans.

5.2 BUDGET AND FINANCING OF THE MOA STRATEGY 2015 – 2019

The Technical Working Groups estimated the investment costs for all the areas of intervention and the related activities, which have been reviewed and approved by the MoA Strategy 2015-2019 Steering Committee.

The investment budget was estimated at LBP 496.66 billion (USD 331.1 million). An approximate LBP 45 billion should be added annually, representing the operational budget of the MoA and affiliated institutions. Climate Change related activities represent almost one third of the total requested financial resources (Please refer to Annex 2 for further details).

The resource requirements will be distributed as follows:

- Legislation, control and inspection	USD 3.5 million
- Communication and extension	USD 8.3 million
- Research and studies	USD 4.9 million
- Capacity development	USD 48.4 million
- Development programmes	USD 266.0 million

Financing sources will be sought in order to implement the strategy depending on expenditures' nature. Bilateral and multilateral meetings with international donors will be organised to review the budgetary gaps of the Ministry of Agriculture, and to procure financial resources for funding identified priority programmes and projects.

6. RISKS AND ASSUMPTIONS

The main risks and assumptions to the implementation of the Strategy could be summarised as follows:

- Security, political and economic situation;
- MoA capacity of absorption for the management of proposed developmental projects;
- Mobilising the adequate financial resources;
- Cooperation of stakeholders and other administrations in the implementation of the strategy.

A detailed description of risks and assumption per each course of action and areas of intervention are included in Annex no.1 – The Logical Framework of the Ministry of Agriculture 2015–2019 Strategy.

7. COMMUNICATION AND VISIBILITY

The Ministry of Agriculture 2015–2019 Strategy was launched in a press conference where the objectives, courses of actions, and expected results were presented. A final evaluation workshop will be organised at the end of the strategy implementation.

The Ministry of Agriculture will organise a series of communication and visibility activities in full coordination with the Steering Committee. These will include seminars, workshops, publicity campaigns, etc. in order to contribute to raising the stakeholders awareness and the general public on the main issues of the MoA 2015–2019 strategy, and seek donors support.

ANNEXES

ANNEXE 1: LOGICAL FRAMEWORK MATRIX

General Objective for 2015-2019	Objectively Verifiable Indicators	Sources of verification	Risks / Assumptions
To develop the institutional capacities and increase preparedness of the MoA in order to overcome challenges in the agricultural sector and responding to crises that may arise through partnerships and collaboration among relevant stakeholders	- Achieve the objectively verifiable indicators of the specific objectives by the end of 2019	- Periodic Official publications and reports of the MoA - International reports WB, IMF, FAO	- Stable security, political and economic situation
Specific Objectives	Objectively Verifiable Indicators	Sources of verification	Risks / Assumptions
<p>I. To provide safe and quality food;</p> <p>II. To improve the contribution of agriculture to the economic and social development of the country;</p> <p>III. To promote the sustainable management of natural and genetic resources.</p>	<ul style="list-style-type: none"> - Increase public expenditure on agriculture from 0.5% (MoA budget for 2011 58.7 million USD, of a total national budget of 11.7 billion USD in 2011) to 0.7% of the total national expenditure in 2019; - Increase the contribution of agriculture to the GDP of Lebanon from 4% in 2011 to 6% in 2019; - Increase agricultural production to 3 billion USD in 2019 (2.36 billion USD in 2011), representing a yearly growth rate of 3.4%; - Reduce the annual deficit in the trade balance between exports and imports of agricultural and food products from the 20% average of the past five years to 23% in 2019 (3/13); - Stabilize and prevent the decrease in farmers' income; - Decrease the rate of food poisoning cases in hospitals; - Decentralization of analysed samples to the regional Labs from 10% to 25% in 2019; - Increase household income deriving from fishing and agricultural activities in rural areas; - Stabilize the rural population; - Increase the proportion of the labour force in agriculture; - Increase MoA expenditure on the implementation of sustainable management plans of natural resources; - New and updated legislative provisions related to the sustainable management of natural resources. 	<ul style="list-style-type: none"> - Reports of MoA - Report of the Ministry of Finance - Report of the Central Administration of Statistics - Reports of Agricultural Statistics 	<ul style="list-style-type: none"> - Sufficient human resources capacity at MoA (quality and quantity level) to absorb and manage the proposed development projects - Budget requirements met - Cooperation of other Government agencies and concerned sector stakeholders

Expected results/courses of action	Objectively Verifiable Indicators	Sources of verification	Risks / Assumptions
1. Improve food safety and quality of locally produced and imported products	<ul style="list-style-type: none"> - Decrease in food exports returns due to safety and quality of food by 50% in 2019 - Decrease in the non-conformity ratio of samples of domestic inspection to 60% in 2019 - 25% decrease in the level of contaminants in the follow-up monitoring survey analysis in 2019 - Rate of registered facilities: 50% in 2019 	<ul style="list-style-type: none"> - Import and export statistics - Number of notifications received by the Ministry of Agriculture and the Ministry of Economy and Trade - Laboratories' periodic reports - Outcome of Contaminant monitoring surveys - Reports of the Ministry of Agriculture and records of registered facilities 	<ul style="list-style-type: none"> - Provision of required resources - Security and political situation - Adoption and enactment of the necessary legislation at the required level - Motivation and response of producers - Cooperation of others stakeholders
Components			
Areas of intervention	Means of implementation	Sources of verification	Risks / Assumptions
1.1. Provision of safe and quality food from domestic production			
1.1.1 Development of the legislative and operational framework of controllers and inspectors, and health juridical control	<ul style="list-style-type: none"> - Review, update and prepare proposals and new legislation on food inspectors in 2015; - Legal expert (one month); - Elaborate and implement a system for continuous training of inspectors (60 for 3 days twice a year); - Inspection equipment (28 local centres, 7 regional agencies and 4 central agencies). 	<ul style="list-style-type: none"> - New legislations - Training reports - Periodical reports of the involved services 	<ul style="list-style-type: none"> - Adoption of legislations at the required level
1.1.2 Strengthening the control and inspection of food facilities	<ul style="list-style-type: none"> - Review, update and prepare proposals, legislation and standards for food safety and quality, including maximum residue levels (mrl); - Prepare and implement annual control programmes for food facilities based on the principle of risk analysis (1500 inspection visits and sampling per year); - Complete the evaluation and registration of food facilities and publication of the list of registered facilities in 2016; - Obtain the ISO 17020 certification for the domestic food inspection system. 	<ul style="list-style-type: none"> - Periodic Reports 	<ul style="list-style-type: none"> - Commitment and positive response of producers

1.1.3 Awareness and communication campaign about the importance of food facilities registration	<ul style="list-style-type: none"> - Inform food facilities about the importance of registration (40 meetings and press conferences per year); - Consumer awareness campaign on food safety matters and actions taken in coordination with related stakeholders. 	<ul style="list-style-type: none"> - Periodic reports - Report of awareness campaign 	<ul style="list-style-type: none"> - Availability of resources - Commitment and positive response of producers - Cooperation of other stakeholders
1.1.4 Development of a system for contaminants monitoring programmes	<ul style="list-style-type: none"> - Elaborate a permanent system of monitoring of food contaminants within the Ministry of Agriculture; - Identify priorities in terms of products and contaminants in collaboration with related stakeholders mainly the Ministry of Health; - Elaborate and implement a programme to monitor a number of products including survey plan and frequency; - Identify the priorities of intervention in the production control, based on the monitoring results 	<ul style="list-style-type: none"> - Monitoring programme - Baseline survey report - Follow-up survey report 	<ul style="list-style-type: none"> - Availability of required resources
1.1.5 Activating the role of MoA to participate in decision-making and the development of international standards for food safety and quality	<ul style="list-style-type: none"> - Implement a mechanism for an effective participation in the meetings of the international organizations engaged in food safety and quality - Strengthening the National Committee of Codex Alimentarius - Financing 6 missions per year for two persons 	<ul style="list-style-type: none"> - Missions reports 	<ul style="list-style-type: none"> - Availability of the required resources - Cooperation of other stakeholders
1.2. Provision of safe and quality food from imports			
1.2.1 Strengthening legal and operational control and inspection capacities at border points	<ul style="list-style-type: none"> - Review, update and prepare proposals for new legislation of food control and inspection at border points - Adopt the principle of risk analysis in the control and inspection process - Elaborate and implement of a system for continuous training of inspectors (60 for 3 days twice a year) - Equip the inspectors with rapid screening tests - Obtain the ISO 17020 certification for the control and inspection system at border points 	<ul style="list-style-type: none"> - New legislative texts - Periodic reports - ISO 17020 certificate 	<ul style="list-style-type: none"> - Adoption and enactment of legislation at the required level
1.2.2 Improving the level of infrastructure at the border control points	<ul style="list-style-type: none"> - Rehabilitation of infrastructure of border control points facilities as detailed in the components strengthening of sanitary and phytosanitary 		<ul style="list-style-type: none"> - Availability of the required resources

1.3. Contribution to the formulation of a food safety policy			
<p>1.3.1 Formulation of draft a national policy for food safety and updating the related legislations</p>	<ul style="list-style-type: none"> - Elaborate a draft national policy on food safety in Arabic (Food Safety System Expert for 3 months) - Submit the draft policy to an inter-ministerial coordination committee for review and formulation of a final draft - The Minister of Agriculture submits the final draft to the Council of Ministers for review and adoption - Review the food related legislations and identify the updates and the new texts needed based on the Final Draft of the National Food Safety Policy (Food Safety System Expert for 3 months) - Update the existing legislative framework and prepare proposals for new texts in line with the international standards, in particular Codex Alimentarius 	<p>- Draft of the National policy for food safety</p>	<p>- Cooperation of other stakeholders</p>

Expected results/courses of action	Objectively Verifiable Indicators	Sources of verification	Risks / Assumptions
2. Increase productivity and competitiveness of the Lebanese agricultural products	<ul style="list-style-type: none"> - Increase in agricultural exports (HS1 -10) by 10% in 2019 (567,000 tons in 2013) - Decrease in exports' rejects - Increase in the production of broiler chickens from 57 million birds in 2013 to 62 million birds in 2019 - Increase in domestic production of milk and dairy products from 35% of domestic consumption in 2013 to 40% in 2019 - Conversion of 25,000 hectares to irrigated agricultural land in 2019 - Increase in the number of small farmers, youth and women benefiting from soft loans 	<ul style="list-style-type: none"> - Customs Reports - Agricultural Statistics - Reports of the Directorate of plant Resources - Reports of the Directorate of Animal Resources 	<ul style="list-style-type: none"> - Political and economic situation - Climatic conditions - Availability of the budget required
Components			
Areas of intervention	Means of implementation	Sources of verification	Risks / Assumptions
2.1 Improving the value chains and increasing the value-added for products of plant origin			
2.1.1 Strengthening the management of agricultural inputs	<ul style="list-style-type: none"> - Review, adopt and publish the necessary legislations for the management of agricultural inputs (Legal expert for 3 months) - Put in place a mechanism for information sharing - Prepare manuals of control and inspection of fertilizers and seeds/seedlings (International expert to classify fertilizers -10 days) - Training of inspectors in control and inspection (30 persons for 5 days) - Provide necessary equipment to inspectors - Prepare a decision for the control of pesticides handling, according to the existing Guide - Conduct a study on food wastes and animal farm wastes and how to use them in the production of compost (Expert for 3 months) - Elaborate a legislative framework for food waste and farm wastes and the production and handling of compost bogs - Printing 	<ul style="list-style-type: none"> - The manuals - New legislations - Annual Report of the Department of Plant Resources indicating training and new equipment for inspectors on agricultural inputs 	<ul style="list-style-type: none"> - Adoption of the legislation at the required level - Cooperation of stakeholders

2.1.2 Improving the performance of agricultural inputs producers	<ul style="list-style-type: none"> - Conduct a study concerning the production of propagating material and their handling (Expert for 2 months) - Preparation of a guide for seed multiplication and handling (International seed expert for 20 days) - Prepare a documenting mechanism for wheat and barley seed production - Training on plant mother plots management (30 person for 5 days - Expert of plant mother plots for one month) - Printing 	<ul style="list-style-type: none"> - The Study - The Guide - Decision documenting seed production - Reports of experts 	<ul style="list-style-type: none"> - Cooperation of stakeholders
2.1.3 Implementation of development programmes for a number of agricultural value chains	<ul style="list-style-type: none"> - Elaborate development programmes for 2 plant value chains - Implement the 2 development programmes in coordination with the sectoral committees 	<ul style="list-style-type: none"> - Reports of the proposed programmes - Reports of the implementation of programmes 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.1.4 Promoting Good Agricultural Practices through the support of organic farming and obtaining quality certificates <i>(Related to the Course of Action 8 – Responding to climate change impacts)</i>	<ul style="list-style-type: none"> - Identification of quality certificate requirements and conditions (Expert for 3 months) - Training of inspectors and extension agents (50 a person for 5 days) - Training of farmers (6 sessions per year in each Regional Service) - Incentives for organic and farmers lined in the quality programme (100 farms) 	<ul style="list-style-type: none"> - Programme reports 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.2 Improving the value chains and increasing the value-added for products of animal origin			
2.2.1 Strengthening the management of veterinary drugs and feed additives	<ul style="list-style-type: none"> - Review, adopt and publish the necessary legislations for the management of veterinary drugs and feed additives (Legal expert for 3 months) - Put in place a mechanism for information sharing - Prepare a manual of control and inspection of veterinary drugs and feed additives - Training of inspectors in control and inspection (30 persons for 5 days) - Provide necessary equipment to inspectors - Printing 	<ul style="list-style-type: none"> - The manual - New legislations - Annual Report of the Department of Animal Resources indicating training and new equipment for inspectors 	<ul style="list-style-type: none"> - Adoption of the legislation at the required level - Availability of required budget - Cooperation of stakeholders

2.2.2 Animal feed sector development	<ul style="list-style-type: none"> - Study the feasibility of forage production - Elaborate and implement a development programme to increase the forage production (support to producers, legal incentives, agricultural extension, etc.) - Submit a proposal to cut the wheat and sugar beet subsidies in favour of forage crops production - Submit a proposal to for the creation of silos for grain forage in coordination with the relevant ministries and departments - Formulate and adopt new legislations defining forage quality and forage production facilities requirements 	<ul style="list-style-type: none"> - The Study - The Development Programme - Periodic reports - New legislative texts 	<ul style="list-style-type: none"> - Adoption of the legislation at the required level - Availability of required budget - Cooperation of stakeholders
2.2.3 Implementation of development programmes for a number of value chains of animal origin	<ul style="list-style-type: none"> - Elaborate development programmes for dairy and poultry value chains taking into consideration the different producers segments needs in collaboration with the related Sectoral Committees - Elaborate and implement legislations for the organization and the transparency of marketing with the related Sectoral Committees 	<ul style="list-style-type: none"> - Reports of the proposed programmes - Reports of the implementation of programmes 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.2.4 Extension on Good Farm Management and the application of bio-security measures	<ul style="list-style-type: none"> - Prepare the extension material - Conduct a training of trainers to 40 persons for 5 days - Roll out training to farmers (5 trainings in each of the 7 regions per year) 	<ul style="list-style-type: none"> - Reports of extension 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.3 Strengthening the phytosanitary measures			
2.3.1 Updating phytosanitary legislations and management organizational structure based on international standards	<ul style="list-style-type: none"> - Review and update plant health legislation in line with the international standards - Define the mission and strategy of the NPPO - Update the organizational structure of the NPPO 	<ul style="list-style-type: none"> - New legislation 	<ul style="list-style-type: none"> - Adoption of the legislation at the required level - Cooperation of stakeholders
2.3.2 Improving MoA capacities in pest surveillance	<ul style="list-style-type: none"> - Establish an NPPO unit for pest surveillance - Train staff on pest surveillance - Develop surveillance manuals and programmes - Provide needed resources (equipment, materials, etc.) - Implement pest surveys according to priorities 	<ul style="list-style-type: none"> - Plant Protection Service pest survey reports 	<ul style="list-style-type: none"> - Availability of required budget
2.3.3 Strengthening MoA capacities in pest eradication	<ul style="list-style-type: none"> - Establish and NPPO unit for pest eradication - Train staff on pest eradication - Provide needed resources (equipment, materials, etc.) - Develop survey manuals and eradication plans - Implement pest eradication as required 	<ul style="list-style-type: none"> - Plant Protection Service pest eradication reports 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders

2.3.4 Improving the phytosanitary import regulatory system based on international standards	<ul style="list-style-type: none"> - Develop a Pest Risk Analysis system - Facilitate access to related information and databases - Train inspection staff - Update the regulatory framework of phytosanitary legislation based on the international requirements - Rehabilitate and equip the border point centres 	<ul style="list-style-type: none"> - New legislative texts - Reports of Import and Export and Plant Quarantine Service 	<ul style="list-style-type: none"> - Adoption of the legislation at the required level - Availability of required budget - Cooperation of stakeholders
2.3.5 Improving the plant export certification system based on international standards	<ul style="list-style-type: none"> - Update the regulatory framework based on the international requirements - Provide needed resources (equipment, materials, vehicles, etc.) - Develop export certification manuals and documentation/information system - Conduct trainings to related staff in regional services and border points 	<ul style="list-style-type: none"> - New legislative texts - Reports of Import and Export and Plant Quarantine Service 	<ul style="list-style-type: none"> - Adoption of the legislation at the required level - Availability of required budget - Cooperation of stakeholders
2.4 Strengthening the animal health measures			
2.4.1 Updating animal health legislations and management organizational structure based on international standards	<ul style="list-style-type: none"> - Review and update animal health legislations in line with the international standards: General Veterinary law and implementation decrees, etc. - Define the mission and strategy of the animal health/veterinary service - Update the organizational structure of the animal health/veterinary service management 	<ul style="list-style-type: none"> - New legislation 	<ul style="list-style-type: none"> - Adoption of the legislation at the required level - Cooperation of stakeholders
2.4.2 Strengthening MoA capacities in animal diseases surveillance, control and containment	<ul style="list-style-type: none"> - Establish an epidemiological unit for animal diseases surveillance, control and containment - Train and equip staff with the necessary equipment and materials - Develop animal diseases surveillance manuals and programmes - Develop animal diseases containment plans - Implement animal diseases surveillance and containment according to priorities - Elaborate and implement cooperation programmes with accredited and reference specialised laboratories 	<ul style="list-style-type: none"> - Animal health service surveillance and containment reports 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.4.3 Development of the import/export and animal quarantine system in order to meet with the international standards	<ul style="list-style-type: none"> - Update the related legislations - Develop a Risk Analysis system and facilitate access to related information and databases - Develop export certification manuals and documentation/information system - Train inspection staff in regional services and border points - Rehabilitate and equip the border point centres 	<ul style="list-style-type: none"> - New legislative texts - Reports of the Directorate of Animal Resources 	<ul style="list-style-type: none"> - Adoption of the legislation at the required level - Availability of required budget - Cooperation of stakeholders

2.5 Increasing agricultural exports			
2.5.1 Facilitating the establishment of an Agriculture Export Promotion Committee from the public and private sectors	<ul style="list-style-type: none"> - Facilitate the establishment of the Agricultural Export Promotion Committee from line ministries and administration and related public sector (3 meetings per year) - Review the current trade and marketing policies and agreements - Coordinate the promotion activities - Design of export support incentives - Establishment of Working Groups per products in collaboration with the related Sectoral Committees (5 Working Groups meetings per month) 	<ul style="list-style-type: none"> - Export promotion committee reports 	<ul style="list-style-type: none"> - Cooperation of stakeholders
2.5.2 Improving the supply chain management and decreasing food losses at the level of packinghouses, cold storage and processing facilities	<ul style="list-style-type: none"> - Prepare and adopt new legislation - Train Inspectors on the control and inspection of packaging and cold storage facilities (30 persons for 5 days - Expert for 3 months) - Provide necessary equipment to inspectors (8 centres) - Train food processing factories and centres on the Good Manufacturing Practices and manufacturing of new and innovative types of products (International experts for 120 days) - Design incentives to support the factories, facilities and centres especially in traceability (50) 	<ul style="list-style-type: none"> - New legislation - Programme of Incentives - Report of the Economic and Marketing Services - Expert Report 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Availability of required budget - Cooperation of stakeholders
2.5.3 Repositioning in the traditional markets and opening new markets for the Lebanese agricultural and food products	<ul style="list-style-type: none"> - Survey markets (marketing expert for 6 months) - Develop an agricultural Marketing Information System and share marketing information - Study of the level of competitiveness (supply capability/crop candidate) in collaboration with the related Sectoral Committees - Promotion (through participation in trade fairs and exhibitions, trade missions, etc.) 	<ul style="list-style-type: none"> - Report of the market survey - Report of the Economy and Marketing Services 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Availability of required budget - Cooperation of stakeholders
2.6 Enhancing internal marketing channels			
2.6.1 Strengthening the wholesale markets	<ul style="list-style-type: none"> - Update the legislative framework governing the wholesale markets in coordination with the concerned administrations - Train and equip inspectors - Design incentives to support a pilot wholesale market(s) 	<ul style="list-style-type: none"> - New legislation - Programme of Incentives - Report of the Economy and Marketing Services 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Availability of required budget - Cooperation of stakeholders

2.6.2 Development of farmers and agricultural cooperatives markets	<ul style="list-style-type: none"> - Elaborate a national plan for the establishment of farmers' markets in a number of regions (Marketing expert for 3 months) - Implement a pilot farmers' market with one of the involved municipalities 	<ul style="list-style-type: none"> - The national plan - Plant Economy and Marketing Service reports 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.6.3 Promotion of contract farming	<ul style="list-style-type: none"> - Elaborate contract templates for a number of agricultural products - Study the possible incentives scenarios to promote contract farming (Expert for 3 months) - Implement some of the proposed incentives at a pilot level in cooperation with existing initiatives and incentive programmes 	<ul style="list-style-type: none"> - Contract templates - Study report 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.6.4 Advertising campaigns to promote the consumption of Lebanese agricultural products	<ul style="list-style-type: none"> - Select a number of Lebanese quality products - Prepare and implement an media campaign to promote the consumption of the selected products 	<ul style="list-style-type: none"> - Campaign report 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.7 Developing national plans for the conservation and expansion of agriculture and irrigated areas			
2.7.1 Elaborate a plan to expand agricultural lands and to develop agricultural infrastructure at the level of the 8 Green Plan regions <i>(Related to the Course of Action 8 – Responding to climate change impacts)</i>	<ul style="list-style-type: none"> - Conducts studies for the elaboration of agricultural infrastructure and irrigation water plans including an increase of reclaimed lands and irrigated areas 	<ul style="list-style-type: none"> - Plans 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.7.2 Reclamation of lands and construction of agricultural roads <i>(Related to the Course of Action 8 – Responding to climate change impacts)</i>	<ul style="list-style-type: none"> - Reclaim lands and construct new agricultural roads according to requests and in view of the adopted plans 	<ul style="list-style-type: none"> - Periodic reports of Green Plan 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.7.3 Studying the crops/varieties that have a demand in local and international markets and identification of the competitive advantages of producing it in Lebanon <i>(Related to the Course of Action 8 – Responding to climate change impacts)</i>	<ul style="list-style-type: none"> - Identify the crops/varieties that have a demand in local and international markets and study the supply and demand - Demonstrate their production opportunities in Lebanon - Identify their comparative advantage being cultivated in Lebanon - Elaborate recommendation for future cropping - Local expert for 6 months and international expert for 60 days 	<ul style="list-style-type: none"> - Study report 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders

<p>2.7.4 Implementation at pilot level of the plans aiming to expand the agricultural lands <i>(Related to the Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Sensitise farmers about the plans - Link the expansion of agricultural lands and investments with other existing incentive programmes 	<ul style="list-style-type: none"> - Reports of Green Plan 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
2.8 Improving legal status of farmers and farmers organizations			
<p>2.8.1 Preparation of a draft law and its application decrees to regulate agricultural and fishing professions</p>	<ul style="list-style-type: none"> - Establish a committee of representatives of the concerned private farmers, Chambers of Commerce, Industry and Agriculture, and the Order of Engineers, Syndicate of Veterinarians, Fishermen's Unions and the Ministry of Agriculture, in order to prepare a draft law (4 Committee meetings - Legal Expert for 12 months) - Formulate the draft law and application decrees 	<ul style="list-style-type: none"> - Draft law - Application Decrees 	<ul style="list-style-type: none"> - Cooperation of stakeholders
<p>2.8.2 Submission of the draft law to the Council of Ministers</p>	<ul style="list-style-type: none"> - Revise the law (by the Minister of Agriculture) - The Minister of Agriculture submits the law to the Council of Ministers 	<ul style="list-style-type: none"> - Letter of submission 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation oot the required level - Cooperation of stakeholders
2.9 Providing support to small-scale farmers and producers, and encouraging youth and women to engage in agriculture-related investments			
<p>2.9.1 Preparation of feasibility studies for a number of agricultural projects and make them available to young people and women</p>	<ul style="list-style-type: none"> - Conduct economic feasibility studies of selected projects that could be proposed to young and women (Expert in agricultural economy for 6 months, Technical Experts for 6 months) - Print the feasibility studies - Train MoA Extension staff on agricultural projects feasibility study (50 people for 3 days) - Distribution of the economic feasibility studies through the regional services and agricultural centres 	<ul style="list-style-type: none"> - Economic feasibility studies - Reports of Regional services and agricultural centres stating the distributed quantities 	<ul style="list-style-type: none"> - Cooperation of stakeholders
<p>2.9.2 Continuation of the small and fruit trees farmers soft loans and guarantee fund in collaboration with KAFALAT</p>	<ul style="list-style-type: none"> - Sensitise small producers, women and youth about the agricultural soft loans and guarantee funds and the required conditions of applications - Provide technical assistance in file preparation - Meet with a number of banks and insurance companies to stimulate them to finance and support the small farmers soft loans 	<ul style="list-style-type: none"> - Reports of KAFALAT 	<ul style="list-style-type: none"> - Cooperation of stakeholders

Expected results/courses of action	Objectively Verifiable Indicators	Sources of verification	Risks / Assumptions
3. Improve the good governance and sustainable use of natural resources	<ul style="list-style-type: none"> - 5% increase in the total forest area by 2019 - Increase in the quantity and value of forest crops from 80 million USD in 2013 to 85 million USD by 2019 - Increase in the production of sage and oregano from 175000 Kg in 2013 to 185000 Kg by 2019 - Surface area of forests and rangelands on which a plan for sustainable management is applied - Increase in the number of registered fishermen from 6,000 in 2013 to 8000 by 2019 - Increase in the quantity of production per effort of fishing - Increase in the quantity of production of the aquaculture sector from 4500 tons in 2013 to 9000 by 2019 - Increase in the fish and aquatic stock over a period of 10 years - Increase in the ratio of conversion to modern irrigation over the total irrigated area by 15% in 2019 	<ul style="list-style-type: none"> - Reports or forest surveys and land use maps - Licenses of wood cut, investment, and charcoal production - MoA statistics - Declarations of the cultivation of medicinal and aromatic plants - Fishing permits - Studies of fish production - Evaluation studies of fish stock - Reports of agricultural inputs companies indicating the irrigated areas - Periodic reports of the Directorate of Natural Resources and Rural Development 	<ul style="list-style-type: none"> - Security, political and economic situation - Availability of land suitable for afforestation - Availability of required expertise - Availability of data and information - Cooperation of stakeholders - Climatic conditions - Availability of required budget
Components			
Areas of intervention	Means of implementation	Sources of verification	Risks / Assumptions
3.1 Strengthening good management and sustainable use of forests			
3.1.1 Promotion of good governance in forest management <i>(Related to Course of Action 8 – Responding to climate change impacts)</i>	<ul style="list-style-type: none"> - Update the legislations to be in line with international standards (legal expert for 3 months) - Enactment and enforcement of legislation - Build the capacities of concerned departments (human, infrastructure and equipment) for 40 Centres - Activate the local participation in the management and conservation of forests and afforestation (8 meetings/zones, 5 topics twice a year) - Increase the awareness on the economic and environmental importance of forests (media and extension material) 	<ul style="list-style-type: none"> - New legislation - Periodic reports 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Availability of required budget - Cooperation of stakeholders

<p>3.1.2 Afforestation and reforestation in order to increase the forested area</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Complete the national master plan for afforestation and reforestation that identifies the places and methods of afforestation - Raise tree nurseries productivity to 2 million seedlings by 2017 - Provide extension to public and private nurseries to produce drought resistant trees - Afforest and/or reforest a total area of 6,000 hectares by 2019, within the national master plan and the 40 million trees programme - Coordinate and steer all afforestation and reforestation initiatives implemented by public and private sector and related fund raising - Monitor and evaluate the afforestation and reforestation operations (engineers: 3 visits per year – Forest guards: 12 visits per year in three years to 100 locations) 	<ul style="list-style-type: none"> - Master plan - Periodic reports of Forests and natural resources Service - Reports of the implementation of afforestation projects 	<ul style="list-style-type: none"> - Availability of land for afforestation - Availability of required budget - Cooperation of stakeholders
<p>3.1.3 Protection from risks and pests that threaten forests</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Implement the forest fire fighting strategy (equipment for preparedness and response and risk reduction) - Tender the clearing forest and roads (Annual tenders for 100 hectares) - Apply the forest integrated pest management 	<ul style="list-style-type: none"> - Periodic reports of Forests and natural resources Service 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
<p>3.1.4 Rationalize the harvest and investment of wood and non-wood forest products</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Train MoA engineers and Forest Guards (20 days for 10 people - International experts for 20 days, local experts for two months) - Roll-out trainings to producers 	<ul style="list-style-type: none"> - Experts Reports - Periodic reports of the Forests and natural resources Service 	<ul style="list-style-type: none"> - Cooperation of stakeholders - Availability of required expertise
<p>3.1.5 Forest Resources Assessment</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Train MoA technical staff - Survey of the forests - Analyse the results - Compute the quantity and value of forest crops in 2016 and 2019 	<ul style="list-style-type: none"> - Survey reports 	<ul style="list-style-type: none"> - Availability of required budget

3.2 Promoting sustainable investment and management of pasturelands			
<p>3.2.1 Promotion of good governance in rangeland management</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Update the legislations to be in line with international standards (legal expert for 2 months) - Enactment and enforcement of legislation - Build the capacities of concerned departments (human, infrastructure and equipment) for 40 Centres - Activate the local participation in the management and conservation of rangelands (8 meetings/zones, twice a year) - Increase the awareness on the economic and environmental importance of rangelands and pastures (media and extension material) 	<ul style="list-style-type: none"> - New legislation - Periodic reports of the Forests and natural resources Service 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Cooperation of stakeholders
<p>3.2.2 Assessment of rangelands and pastoral plants on a national level</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Identify pastures, their forage and carrying capacities, in collaboration with LARI - Identify pastoral/grazing systems and pathways - Develop a plan to manage and improve the rangelands (rehabilitation of nurseries to produce pastoral seedlings and rehabilitation of existing pastures) - Implement an integrated management of rangelands in three different climatic zones and provide extension to the concerned stakeholders 	<ul style="list-style-type: none"> - Survey report 	<ul style="list-style-type: none"> - Availability of required expertise - Cooperation of stakeholders - Availability of required budget
3.3 Improving the management of medicinal and aromatic plants and wild fruit trees sector			
<p>3.3.1 Conservation and production of medicinal and aromatic plants</p>	<ul style="list-style-type: none"> - Produce medical and aromatic plants in the nurseries in MoA - Train forest guards on the harvesting of wild medicinal and aromatic plant seeds (40 Centre for two people for two days) - Harvest the seeds - Promote the planting of medicinal and aromatic plants to reduce the wild harvesting - Study the feasibility of production of new species such as chamomile, lavender, hyssop, etc. through the establishment of experimental fields - Provide extension on value addition to the medicinal and aromatic plants harvest through processing (drying, essential oil production) - Print and make available the studies to farmers through the agricultural centres - Inform the rural community on the other species (8 seminars per year) 	<ul style="list-style-type: none"> - Nurseries reports - Training reports - Printed and available feasibility studies 	<ul style="list-style-type: none"> - Cooperation of stakeholders

3.3.2 Rationalize and control of medicinal and aromatic plants harvesting	<ul style="list-style-type: none"> - Train controllers (40 Centre for two persons, two topics for two days) - Roll out the training to the harvesters (3 courses every two years for 10 people) - Print materials 	- Periodic reports of the Forests and natural resources Service	- Cooperation of stakeholders
3.4 Supporting investment in the fisheries and aquaculture and improving sustainable management of the sector			
3.4.1 Strengthening the legislative and regulatory framework of fishing and aquaculture	<ul style="list-style-type: none"> - Review and update the relevant legislation without contracting with the international standards - Draft a legislative framework for aquaculture (legal expert for 6 months) - Draft standards for the marketing of fisheries and aquaculture products including hygiene, packaging, transportation, display, etc. (Specialized Experts specialists for 15 months) - Overtime work hours for MoA staff 	- New legislative texts	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Cooperation of stakeholders
3.4.2 Promoting research and elaboration of development plans	<ul style="list-style-type: none"> - Reactivate the fisheries Sectoral Committee in the Ministry of Agriculture (25 person, 15 meeting) - Assess the consumption and demand for fishing and aquaculture products and means to increase their added value - Assess the national production of fisheries and aquaculture - Assess the fish stocks in the territorial waters in 2015, 2017 and 2019 - Elaborate new educational programmes on fishing and aquaculture - Rehabilitate MoA's Research Centres - Encourage cooperation in applied research and activate the partnership with the concerned institutions - Prepare plans for the development of fisheries and aquaculture - Elaborate an operational plan to promote the multifaceted income from the fisheries and aquaculture sector 	<ul style="list-style-type: none"> - Reports of the Committee - Study on consumption - Study on Production evaluation - Study on stock valuation - Report on educational programmes - Reports on rehabilitation centres 	<ul style="list-style-type: none"> - Cooperation of stakeholders - Availability of required budget

<p>3.4.3 Fisheries Development</p>	<ul style="list-style-type: none"> - Assist in the modernization of the fleet through fishermen cooperatives (33 cooperatives) - Coordinate with the Ministry of Transport to modernize ports and landing sites - Identify new fishing areas within the territorial waters - Deliver extension on modern fishing techniques (300 Seminars) - Implement a programme to develop sustainable fishing through support for the replacement of fishing equipment - Conserve and sustain the fishing resources through prohibiting fishing during certain periods and offering the related compensation - Enforce the role of fishing and forest guards in putting into effect the laws and provide the necessary infrastructure and equipment (7 centres) - Activate and develop of material and moral incentives to forest and fishing guards 	<ul style="list-style-type: none"> - Reports of the Department of fishing and hunting - Map of the new areas for fishing - Report on priorities and rehabilitation plans of ports and landing sites - Reports of the implemented programmes 	<ul style="list-style-type: none"> - Availability of required expertise - Cooperation of stakeholders - Availability of required budget
<p>3.4.4 Aquaculture Development</p>	<ul style="list-style-type: none"> - Assess consumer acceptance to the various types of aquaculture produce and their processed goods - Coordinate with the concerned departments to establish aquaculture farms in saline waters - Provide extension on aquaculture (25 seminars) 	<ul style="list-style-type: none"> - Report assessing consumer acceptance - Reports of the Department of fishing and hunting 	<ul style="list-style-type: none"> - Availability of expertise required - Cooperation of stakeholders
<p>3.4.5 Development of information collection system</p>	<ul style="list-style-type: none"> - Update the information collection mechanism (Experts for 12 months) - Train on information collection information (5 sessions for 20 persons) - Establish a database on aquatic stock 	<ul style="list-style-type: none"> - Report on the information collection mechanism, needed trainings and required budget - Decree that establishes the unit for data collection within MoA - Guide or manual of collection of new information - Training report - Annual report 	<ul style="list-style-type: none"> - Availability of required expertise - Cooperation of stakeholders - Availability of required budget

3.5 Modernizing the irrigation system in Lebanon and promoting the use of alternative sources of water and energy in agriculture			
<p>3.5.1 Increasing irrigation water storage quantity and improvement of the distribution</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Study and identify hill lakes sites and their order of priority in correlation with the area of intervention 2.7.2 - Construct 30 hill lakes (a total of one million cubic meters) with low establishment and operational cost, and easy maintenance - Connect the hill lakes to water distribution networks to the level of the agricultural exploitation - Establish a committee/association for each hill lake to improve the management and distribution of water in coordination with the concerned stakeholders (municipalities, cooperatives, farmers groups, etc.) - Construct 500 individual hill lakes and water tanks annually - Rehabilitate the irrigation canals of small springs and water sources 	<ul style="list-style-type: none"> - Hill lakes reports 	<ul style="list-style-type: none"> - Cooperation of stakeholders - Availability of required budget
<p>3.5.2 Using new technologies and raising the efficiency of irrigation at farm level</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Elaborate an extension programme and prepare the extension material - Conduct extension seminars (5 seminars annually in each of the 28 centres) - Promote the conversion of 1000 hectares annually to modern irrigation networks with high efficiency through 50% support on new equipment 	<ul style="list-style-type: none"> - Periodic reports of the Rural Engineering Service 	<ul style="list-style-type: none"> - Cooperation of stakeholders - Availability of required budget
<p>3.5.3 Activating the use of treated wastewater in agriculture</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Coordinate with the concerned departments (water establishments, municipalities, etc.) to invest in treated wastewater - Prepare legislation to regulate the use of treated waste water in agriculture - Provide extension on the proper use of treated wastewater in agriculture 	<ul style="list-style-type: none"> - New legislative texts - Periodic reports of Rural Engineering Service 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Cooperation of stakeholders
<p>3.5.4 Promoting the use of renewable energy in agriculture and irrigation</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Elaborate and implement a plan for the use of alternative energy in agriculture - Establish 28 demonstration plots for renewable energy use in irrigation (1 in each agricultural centre) - Conduct field days to disseminate information about the use and maintenance of renewable energy projects in irrigation 	<ul style="list-style-type: none"> - Periodic reports of Rural Engineering Service 	<ul style="list-style-type: none"> - Cooperation of stakeholders - Availability of required budget

Expected results/courses of action	Objectively Verifiable Indicators	Sources of verification	Risks / Assumptions
4. Strengthening agricultural extension and education	<ul style="list-style-type: none"> - Increase in the number and topics of producers trainings and their geographical distribution - Increase in the number of farmers participating in extension activities - Increase in the rate of adoption of extension information - Decrease in the rate problem recurrence at the farm level - Increase in the rate of enrolment in agricultural schools - Increase in the rate of graduated over registered students in agricultural schools - Increase in the rate of recruitment or work of students in their respective specialization 	<ul style="list-style-type: none"> - Periodic reports of agricultural centres - Monitoring and Evaluation reports - Annual reports of agricultural schools - Periodic reports of the Directorates under the General Directorate of Agriculture 	<ul style="list-style-type: none"> - Security and political situation - Cooperation of stakeholders - Availability of required budget
Components			
Areas of intervention	Means of implementation	Sources of verification	Risks / Assumptions
4.1 Development of a pluralistic extension system			
<p>4.1.1 Activating the partnership between the public sector, universities, research centres and associations providing extension services</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Establish a Committee for Agricultural Extension - Elaborate an extension plan with a shared vision and an integrated approach to education, research and extension that responds to the needs and provide technical information to farmers, introduces the conservation agriculture, good production practices, and responds to climate change effects on agriculture (agricultural extension expert for a period of 5 months) - Identify means of two-way information flow between farmers and research - Establish a national network for the management and sharing of extension knowledge under the auspices of the Ministry of Agriculture, and managed by the Service of Education and Extension 	<ul style="list-style-type: none"> - Reports of the Committee - Shared Extension Plan - Documents and reports published through the national network 	<ul style="list-style-type: none"> - Commitment and cooperation of personnel

<p>4.1.2 Quality Assurance and control of extension services provided by all the parties</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Improve the existing legislation which allows quality assurance and control of extension services (legal expert 2 months) - Elaborate a system for monitoring and evaluation of extension activities and train the Education and Extension Service on the system (expert for one month) - Recurrent review of extension material and develop new ones, in collaboration with LARI (5 reviews and 5 new materials per year) - Coordinate with stakeholders - Control the quality of extension services and their geographical distribution (Weekly visits, 40 weeks per year) 	<ul style="list-style-type: none"> - New legislative texts - Reports of Monitoring and Evaluation - New extension materials 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Commitment and cooperation of personnel - Availability of required budget
<p>4.1.3 Strengthening Agricultural Extension Centres</p> <p><i>(Related to Course of Action 8 – Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Elaborate annual or seasonal extension plans at the regional level based on the shared extension plan in 4.1.1 (extension expert for a period of 3 months) and related to the M&E system in 4.1.2. - Coordinate and create linkages with the LARI's stations - Train technical staff in a number of areas and communication (5 experts for 2 months each and training workshops of 4 days) according to the needs identified in the extension plans - Provide financial and human resources - Provide the centres with needed equipment and materials, and provide modern extension and communication tools and technologies based on social networking - Implement, monitor and evaluate the extension plan (Weekly visits, 40 weeks per year) 	<ul style="list-style-type: none"> - Annual and seasonal plan extension plans - Periodical report of Education and Agricultural Extension Service - Training reports - Monitoring and Evaluation reports 	<ul style="list-style-type: none"> - Availability of required expertise - Commitment and cooperation of personnel - Availability of required budget
<p>4.2 Activation of the official technical agricultural education according to market demand</p>			
<p>4.2.1 Development of a policy for the official technical agricultural education</p>	<ul style="list-style-type: none"> - Study the current situation, identify priorities, draft the policy and areas of intervention (Expert for 3 months) 	<ul style="list-style-type: none"> - Policy document - Expert Report 	<ul style="list-style-type: none"> - Commitment and cooperation of personnel

<p>4.2.2 Strengthening the management of agricultural schools</p>	<ul style="list-style-type: none"> - Update the legislation including agricultural schools internal bylaws and financial system and the Education Act (Legal expert and educational expert for 3 months) - Allocate specific funds to agricultural schools from the budget of the Ministry of Agriculture - Elaboration of a plan to develop agricultural infrastructure for schools (the current situation, the required facilities ... - 2 technical and educational experts for a period of 3 months for each school) - Develop the infrastructure and of agricultural schools (7 schools) - Update the school management systems according to international standards and train teaching staff and school administrators on the updated system, and the build the capacities of teachers, technicians and trainers - Fill the vacancies in Agricultural Technical Education 	<ul style="list-style-type: none"> - New legislative texts - Plans of infrastructure development for each school - Periodic reports of Education and Agricultural Extension Service - Periodic reports of Agricultural Schools 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Availability of budget resources
<p>4.2.3 Updating the curriculum</p>	<ul style="list-style-type: none"> - Develop modern teaching methods and complete the update of the unified textbook and provide necessary technologies - Conduct a study on the agricultural labour market requirements - Develop new specializations as required - Develop continuous training programmes according to the needs of agricultural areas - Implement pilot projects in schools 	<ul style="list-style-type: none"> - New curricula - Periodic reports of Education and Agricultural Extension Service - Periodic reports of Agricultural Schools 	<ul style="list-style-type: none"> - Commitment and cooperation of personnel
<p>4.2.4 Activating cooperation between agricultural technical education and training and LARI and the Faculty of Agriculture at the Lebanese University and a number of agricultural institutions</p>	<ul style="list-style-type: none"> - Draft cooperation protocols with LARI and the Faculty of Agriculture at the Lebanese University and a number of agricultural and food establishments - Elaborate a joint work plan between LARI and the Agricultural Education and Extension Service specifying the training of students in LARI stations and the participation of researchers in teaching 	<ul style="list-style-type: none"> - Protocols approved and signed - Work plan 	<ul style="list-style-type: none"> - Commitment and cooperation of personnel

Expected results/courses of action	Objectively Verifiable Indicators	Sources of verification	Risks / Assumptions
5. Strengthening agricultural research and laboratories	<ul style="list-style-type: none"> - Four new research stations operational - Increase in the number of tests conducted per year from 100 thousand in 2013 to 150 thousand by 2019 - Eight additional new tests - Increase in the investment in research by 5% yearly (currently 2 million USD) 	<ul style="list-style-type: none"> - Annual reports of the Lebanese Agricultural Research Institute (LARI) 	<ul style="list-style-type: none"> - Availability of required budget - Availability of required expertise - Security, political and financial situation - Contracting terms of Researchers with LARI compared to other institutions
Components			
Areas of intervention	Means of implementation	Sources of verification	Risks / Assumptions
5.1 Developing and strengthening capacities of the Lebanese Agricultural Research Institute (LARI) laboratories			
5.1.1 Development of food safety laboratories at LARI and cooperation with accredited laboratories <i>(Complements Course of Action I: Improve food safety and quality of locally produced and imported products)</i>	<ul style="list-style-type: none"> - Complete the rehabilitation and equipping of Fanar and Tal Amara laboratories (bacteria, chemistry, mycotoxins, heavy metals and colorants, antibiotics, and milk) to satisfy the needs of control and inspection and monitoring of contaminants - Equip water laboratories in all the old and new stations - Equip a Laboratory for the analysis of veterinary drug residues - Rehabilitate food laboratories (Abdeh and Sour) - Train laboratory staff - Obtain the ISO 17025 certificate for Kfarchima pesticides residues lab, and the chemistry, mycotoxins, heavy metals and colorants, antibiotics, and milk laboratories of LARI - Review and increase the number of laboratory tests as needed for the food control and inspection and monitoring of contaminants, and in compliance with the international standards 	<ul style="list-style-type: none"> - LARI reports 	<ul style="list-style-type: none"> - Availability of budget resources - Cooperation of stakeholders

<p>5.1.2 Development of agricultural inputs related laboratories and creation of new ones</p> <p><i>(Complements Component 2.1: Improving the value chains and increasing the value-added for products of plant origin)</i></p>	<ul style="list-style-type: none"> - Strengthen the staff and equipment of the soil and olive oil laboratories in Tal Amara, Abda, Kfarchekhna, Libaa, Sour, Baakline, Hasbaya, Kfardane and Hermel - Establish soil and olive oil laboratories in the new research stations in Nabatieh, Byblos or Batroun, Bcharreh and Akkar - Obtain the ISO 17025 certificate for the pesticide formulation laboratory in Kfarchima - Activate the laboratory of natural enemies in Tel Amara, Sour and Abdeh - Activate the seed lab in Tel Amara 	<ul style="list-style-type: none"> - LARI annual reports - Quality certificate 	<ul style="list-style-type: none"> - Availability of financial resources - Availability of required expertise - Cooperation of stakeholders
<p>5.1.3 Development of plant health laboratories</p> <p><i>(Complements Component 2.3 Strengthening phytosanitary measures)</i></p>	<ul style="list-style-type: none"> - Build the staff capacities and equip the Laboratories of plant protection, protection of wheat, mycology and entomology in Tal Amara, entomology, bacteriology and virology in Fanar - Obtain quality certificates 17025 for the Laboratories of Plant Protection in Tal Amara and Fanar - Construct glasshouse for the analyses of transfer of pathogens to the plant hosts in Tal Amara station - Establish two greenhouses for the conservation of certified plant material from vector insects transferring viral and phytoplasma diseases in Tal Amara - Construct specialized rooms for the transfer of some quarantine diseases on indicative plants in Tal Amara station 	<ul style="list-style-type: none"> - LARI annual report - Quality certificate 	<ul style="list-style-type: none"> - Availability of budgetary resources - Availability of required expertise
<p>5.1.4 Improving the control tests of veterinary drugs</p> <p><i>(Complements Component 2.2 Improving the value chains and increasing the value-added for products of animal origin)</i></p>	<ul style="list-style-type: none"> - Activate the cooperation with the Lebanese Atomic Energy Commission Laboratory (National Council for Scientific Research) for the residues analysis of veterinary drugs through a legal framework or a protocol of cooperation - Designate specific buildings to establish a veterinary drugs quality and formulation analysis Laboratory for the of - Equip a veterinary drugs quality and formulation analysis Laboratory for the of - Recruit the needed staff or contract experts to work in the laboratory - Train laboratory staff - Elaborate of an action plan for the laboratory 	<ul style="list-style-type: none"> - LARI annual report 	<ul style="list-style-type: none"> - Availability of budgetary resources - Availability of required expertise - Cooperation of stakeholders

<p>5.1.5 Activating the forage laboratory</p> <p><i>(Complements Component 2.2 Improving the value chains and increasing the value-added for products of animal origin)</i></p>	<ul style="list-style-type: none"> - Provide modern equipment (NIR) to Tal Amara and Fanar laboratories - Train staff 	<ul style="list-style-type: none"> - Periodic reports of LARI 	<ul style="list-style-type: none"> - Availability of budgetary resources - Availability of required expertise
<p>5.1.6 Strengthening the existing laboratories and establishing new labs for honey</p> <p><i>(Complements Component 2.2 Improving the value chains and increasing the value-added for products of animal origin)</i></p>	<ul style="list-style-type: none"> - Build the staff capacities and equip the honey laboratories in Abdeh, Kfarchakhna, Libaa, Sour, Baakline, Hasbaya, Kfardane, and Hermel stations - Establish honey laboratories in new research stations in Nabatieh, Batroun or Jbeil, Bcharreh and Akkar 	<ul style="list-style-type: none"> - Periodic reports of LARI 	<ul style="list-style-type: none"> - Availability of budget resources - Availability of required expertise
<p>5.1.7 Development of animal health laboratories</p> <p><i>(Complements Component 2.4 Strengthening the animal health measures)</i></p>	<ul style="list-style-type: none"> - Build the staff capacities and equip animal health laboratories in Tal Amara and Fanar - Create new bacteriology, parasitology, and anatomy, etc. laboratories - Obtain quality certificate 17025 for animal health laboratories - Resume work in vaccines production laboratory in Fanar 	<ul style="list-style-type: none"> - LARI annual report - Quality certificate 	<ul style="list-style-type: none"> - Availability of budget resources - Availability of required expertise
<p>5.2 Enhancing agricultural scientific research</p>			
<p>5.2.1 Improving the productivity of sheep and goats through the development of animal breeding centre in Terbol station</p> <p><i>(Complements Component 2.2 Improving the value chains and increasing the value-added for products of animal origin)</i></p>	<ul style="list-style-type: none"> - Increase the production capacity of the centre - Equip the Centre with a semen laboratory - Train centre staff - Conduct research on the new breeds/races 	<ul style="list-style-type: none"> - LARI annual reports 	<ul style="list-style-type: none"> - Availability of budget resources - Availability of required expertise - Cooperation of stakeholders
<p>5.2.2 Establishing a virus and fungal diseases free mother plot for Lebanese olive varieties</p> <p><i>(Complements Component 2.3 Strengthening phytosanitary measures)</i></p>	<ul style="list-style-type: none"> - Test existing seedlings and import new rootstocks - Test the trees and potting soil in order to obtain scions free of any disease - Graft and rare the seedlings and deliver it to the Ministry of Agriculture 	<ul style="list-style-type: none"> - Research report 	<ul style="list-style-type: none"> - Availability of budget resources - Availability of required expertise

<p>5.2.3 Launching scientific research on varieties suitability <i>(Complements Component 2.1: Improving the value chains and increasing the value-added for products of plant origin)</i></p>	<ul style="list-style-type: none"> - Conduct researches on the suitability of market-demanded varieties (crops with a market value and that use small quantity of water: wheat, barley, citrus, olives, grapes, apples and potatoes) with the Lebanese agricultural areas 	<ul style="list-style-type: none"> - Reports of research on varieties 	<ul style="list-style-type: none"> - Availability of budget resources
<p>5.2.4 Launching research on irrigation <i>(-Complements component 3.5: Modernizing the irrigation system in Lebanon and promoting the use of alternative sources of water and energy in agriculture, -Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Conduct research on the safety of crops irrigated with treated wastewater and grey water - Conduct research on Deficit Water Irrigation - Conduct research on Water productivity (increasing crop productivity by cubic meter of water) - Cooperate with the National Council for Scientific Research for conducting research to calculate water requirements through remote sensing techniques - Conduct research on water harvesting and management 	<ul style="list-style-type: none"> - Reports of research on irrigation 	<ul style="list-style-type: none"> - Availability of budget resources - Availability of required expertise
<p>5.2.5 Strengthening the early warning system <i>(-Complements component) 4.1 Development of a pluralistic extension system, -Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Widen the scope of work of the early warning system for agricultural pests, climatic conditions and agricultural extension to include an additional number of risks analysis and means of communication - Upgrade the communication with the beneficiaries to include a feedback system - Link the early warning system with the agricultural centres 	<ul style="list-style-type: none"> - Periodic reports of LARI 	<ul style="list-style-type: none"> - Availability of budget resources - Availability of required expertise
<p>5.3 Improving the conservation of biodiversity and genetic resources</p>			
<p>5.3.1 Studying biodiversity in unprotected ecosystems <i>(Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Study the biodiversity in ecosystems of the pastoral lands and exploited forests in collaboration with Forests and Natural Resources Service at MoA 	<ul style="list-style-type: none"> - Study report 	<ul style="list-style-type: none"> - Availability of required expertise

<p>5.3.2 Strengthening the research on biodiversity and plant genetic resources</p> <p><i>(Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Identify the types of pastoral and medicinal plants, forest trees and fruit trees and their spread and ecological characteristics - Document the Plant Genetic Resources for Food and Agriculture (grains and cereals) including local varieties and wild relatives that grow in the different regions of Lebanon, and conserve it in the seed bank - Conduct a preliminary assessment of these resources in terms of capacity to adopt to climatic change and resistance to harsh environmental conditions - Activate the seed bank and renew the conserved seeds - Update the list of plants with risk of extinction - Identify the genetic diversity of some plants species important economically or for afforestation - Assess the exotic and invasive plants - Conduct an awareness campaign to farming communities on the importance of conservation and good use of plant genetic resources 	<ul style="list-style-type: none"> - Reports of research on plant resources 	<ul style="list-style-type: none"> - Availability of budget resources - Availability of required expertise
<p>5.3.3 Conservation and production of seedlings of wild fruit trees and promoting their cultivation</p> <p><i>(-Complements Component 3.3: Improving the management of medicinal and aromatic plants and wild fruit trees sector</i></p> <p><i>-Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Build the staff capacities and equip the Nurseries in Tal Amara, Abdeh, Kfarchakhna, Libaa, Sour, Baakline, Hasbaya, Kfardane and Hermel - Establish nurseries in new research stations of Nabatieh, Byblos or Batroun, Bcharreh and Akkar - Improve the seed production for indigenous and adopted local varieties and distribute it to farmers 	<ul style="list-style-type: none"> - Periodic reports 	<ul style="list-style-type: none"> - Availability of budget resources - Availability of required expertise

Expected results/courses of action	Objectively Verifiable Indicators	Sources of verification	Risks / Assumptions
6. Development of the cooperative sector and mutual funds	<ul style="list-style-type: none"> - Increase in the percentage of active agricultural cooperatives to 35% by 2019 (the current situation 25%) - Increase in the percentage of members of agricultural cooperatives to 7% of total farmers by 2019 (4.5% in 2013) - 10% of farmers or agricultural enterprises are associated to Mutual Fund for the insurance of the agricultural sector against natural disasters (the current mode is zero) 	<ul style="list-style-type: none"> - Periodic reports of the Directorate General of Cooperatives - Registry of General Directorate of Cooperatives - MoA Statistics - Reports and financial accounts of Mutual Fund for natural disasters 	<ul style="list-style-type: none"> - Government adoption to MoA Strategy 2015-2019 - Vacancies are filled at the General Directorate of Cooperatives - Availability of required budget for the General Directorate of Cooperatives
Areas of intervention	Means of implementation	Sources of verification	Risks / Assumptions
6.1 Improving and strengthening the General Directorate of Cooperatives capacities			
6.1.1 Strengthening and developing the human, administrative and material capacities of the General Directorate of Cooperatives	<ul style="list-style-type: none"> - Prepare a programme for the development of human, administrative and material capacities during 2015 (Expert in capacity development for a month) - Implement the programme for the development of human and administrative capacities during 2016-2019 - Train 60 employees for a period of five days per year for 4 years (Functional affairs expert for 10 days, Financial affairs and accounting expert for 10 days, Cooperatives expert for 10 days, Mutual funds expert for 10 days, Actuary expert for 10 days) - Provide equipment (10 cars, office stationary...) - Conduct 2 oversee educational trainings to ten employees per year 	<ul style="list-style-type: none"> - The proposed programme for the development of human, administrative and physical capacity - Periodic Reports of the implementation of human and administrative and material capacity development programme 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Availability of budget required - Availability of expertise required
6.1.2 Enhancement of the functions and services provided by the General Directorate of Cooperatives	<ul style="list-style-type: none"> - Prepare annual programmes - Conduct 40 field visits (by each of the 6 regional departments) per year for 4 years - Carry out 200 workshops, seminars and training workshops, including awareness on the collaborative work and cooperatives - Raise the awareness on the importance of the cooperative unions - Provide assistance to the non-public sector to support cooperatives, mutual funds and unions 	<ul style="list-style-type: none"> - Periodic Reports of the implementation of programmes 	<ul style="list-style-type: none"> - Availability of budget required - Cooperation of stakeholders

6.2 Assessing the status of cooperatives and mutual funds			
6.2.1 Evaluation of cooperatives and mutual funds	<ul style="list-style-type: none"> - Prepare a programme and evaluation criteria - Build the capacities of the General Directorate of Cooperatives in the area of evaluation (expert for 2 months) - Conduct a training workshop (30 trainees) for 5 days - Implement of the evaluation programme (1 700 Field visits) 	<ul style="list-style-type: none"> - The evaluation programme - Periodic Reports of the implementation of the evaluation programme - Tables grouping cooperatives and mutual funds according to the new classifications 	<ul style="list-style-type: none"> - Availability of budget required - Cooperation of stakeholders
6.2.2 Implementation of the proposals formulated in the evaluation of cooperatives and mutual funds report	<ul style="list-style-type: none"> - Undertake the necessary procedures or measures to implement the proposals - Communicate and diffuse information about the measures taken 	<ul style="list-style-type: none"> - Annual Reports of the implementation of the programme 	<ul style="list-style-type: none"> - Availability of budget required - Cooperation of stakeholders
6.3 Re-activating the Cooperative Credit Union and the General National Union of Cooperative Associations			
6.3.1 Activating the role of the Union of Cooperative Credit	<ul style="list-style-type: none"> - Review the relevant legislation - Prepare a programme for capacity development - Give the results of the evaluation to the Union of Cooperative Credit to take the necessary related decisions 	<ul style="list-style-type: none"> - The proposed programme - Report on the implementation of the programme 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Cooperation of stakeholders
6.3.2 Activating the role of the National General Union of Cooperative Associations	<ul style="list-style-type: none"> - Review the relevant legislation - Give the results of the evaluation to the National General Union of Cooperative Associations to take the necessary related decisions - Prepare a programme for capacity development 	<ul style="list-style-type: none"> - Budget of General Directorate of Cooperatives - Periodic Reports of the National Union of General cooperative societies 	<ul style="list-style-type: none"> - Adoption and enactment of the legislation at the required level - Cooperation of stakeholders
6.4 Supporting and activating the mutual fund for the insurance of agricultural sector against natural disasters			
6.4.1 Supporting the Mutual fund for the insurance of the agricultural sector against the natural disasters <i>(Related to the Course of Action 8: Responding to climate change impacts)</i>	<ul style="list-style-type: none"> - Work in order to provide assistance in support (from the national budget) to the mutual fund for the insurance of the agricultural sector from natural disasters 	<ul style="list-style-type: none"> - Statement of account showing the amounts transferred - Annual report of Mutual Fund Manager 	<ul style="list-style-type: none"> - Availability of budget required - Cooperation of stakeholders

<p>6.4.2 Review and assessment of the financial mechanism of Mutual fund for the insurance of the agricultural sector against natural disasters</p> <p><i>(Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Assess the financial mechanism of the Mutual Fund (Expert in financial assessment or insurance expert for mutual funds for one month) - Implement the proposals formulated in the report 	<ul style="list-style-type: none"> - Report on the financial mechanism of the Mutual Fund s - Report of the Director of the Mutual Fund 	<ul style="list-style-type: none"> - Cooperation of stakeholders
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Expected results/courses of action	Objectively Verifiable Indicators	Sources of verification	Risks / Assumptions
7. Development of the Ministry of Agriculture's capacities	<ul style="list-style-type: none"> - Decrease in MoA's vacancies (currently 70%); - Decrease in LARI's vacancies to 10% by 2019 (currently 30%); - Increase in MoA staff skills; - Increase in MoA Budget; - Increase in the rate of external funding for MoA's programmes; - Increase in the rate of satisfaction in MoA's agricultural Services to 50% in 2019 (means and speed of execution) - Increase in the number of bulletins and statistical studies produced; - Increase in number of beneficiaries of agricultural services; - Number of reviewed standards, conventions and policies. 	<ul style="list-style-type: none"> - MoA's personnel records - Percentage increase in staff skills form and report - Budget - Programmes service reports Satisfaction from agricultural services report - MoA's Annual report - Reports of the Directorate of Studies and Coordination 	<ul style="list-style-type: none"> - Security situation - Cooperation of the Council of Ministers with the proposals - Capacity of absorption - Cooperation of staff - Availability of required resources - Private sector confidence in MoA - Flexibility of administrative procedures
Components			
Areas of intervention	Means of implementation	Sources of verification	Risks / Assumptions
7.1 Updating the organizational structure and reinforcing the role of MoA and its affiliated institutions (General Directorate of Cooperatives and the Lebanese Agricultural Research Institute) and updating the existing legislations and regulations governing the agricultural sector and MoA			
7.1.1 Development of administrative work and simplification of administrative procedures in the General Directorate of Agriculture	<ul style="list-style-type: none"> - Review and update the organisational structure and job description - Complete the measures aiming at the simplification of the execution of administrative transactions - Activate the Human Resources unit - Fill the vacancies, specially the high management positions - Activate the performance evaluation system - Conduct continuous administrative training 	<ul style="list-style-type: none"> - The organisational structure report - Training reports - Decrees of appointment and promotion of staff 	<ul style="list-style-type: none"> - Availability of required budget - Adoption of the organisational structure at the required level - Cooperation of stakeholders
7.1.2 Upgrading the financial management in the General Directorate of Agriculture	<ul style="list-style-type: none"> - Review the budget and adopt new and modern methods for its preparation, including Performance Based Budgeting, in line with the principals of good governance 	<ul style="list-style-type: none"> - Newly prepared budget 	<ul style="list-style-type: none"> - Availability of required budget - Adoption of legislation at the required level - Cooperation of stakeholders

<p>7.1.3 Activation of communication and media in the General Directorate of Agriculture</p>	<ul style="list-style-type: none"> - Conduct training on Communication and Media - Elaborate and implement a plan for the Communication and Media - Allocate a specific budget for Communication/Media 	<ul style="list-style-type: none"> - Communication and Media plan - Training reports - Periodic reports of the Department Public Relations and Media 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
<p>7.1.4 Strengthening and modernization of an integrated system for planning, monitoring and evaluation, risk management and fund raising at the General Directorate of Agriculture</p>	<ul style="list-style-type: none"> - Activate the strategic and operational planning - Put into practice a Monitoring and Evaluation system - Improve the legislative texts to include the risk management - Elaborate a methodology / guidelines - Conduct a training on Planning, Monitoring and Evaluation, internal audit, risk management, fund raising - Elaborate and implement fund raising plans - Conduct a training on agricultural policy formulation and analysis - Review and analyse the current farmers' support policies and propose more effective ones 	<ul style="list-style-type: none"> - Monitoring and Evaluation reports - Legislative texts including risk management - The methodology / guidelines - Training reports 	<ul style="list-style-type: none"> - Availability of required budget - Adoption of legislation at the required level - Cooperation of stakeholders
<p>7.1.5 Upgrading and modernization of IT network and Documentation in the General Directorate of Agriculture</p>	<ul style="list-style-type: none"> - Complete the implementation of the recommendations listed in the assessment report - Maintain and continue to upgrade the systems, networks and programmes - Cooperate with OMSAR in the implementation of the e-government - Prepare a Disaster Recovery Plan - Cooperate with the Council of Ministers to activate the information sharing among the administrations - Provide the necessary human resources 	<ul style="list-style-type: none"> - Number of centres connected to the central server - Periodic reports of the Documentation and IT Department 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders

<p>7.1.6 Strengthening the agricultural statistics and capacity development in economic research in the General Directorate of Agriculture</p> <p><i>(Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Manage and update the farm register - Prepare and publish economic studies including impact of food price volatility on food security in cooperation with the Ministry of Economy and Trade and the Council of Ministers - Establish an Information and Early Warning System on food prices (local and international) - Strengthen the statistics GIS unit - Conduct training on Agricultural Statistics and Economic Studies - Implement the national strategy for the development of the agricultural statistics: <ul style="list-style-type: none"> ▪ Develop Agricultural Statistics Databases ▪ Elaborate a methodology and guidelines for collection, entry, analysis and reporting/publishing of agricultural statistics data ▪ Conduct production surveys 	<ul style="list-style-type: none"> - Survey reports - Periodic reports of the Statistics and Economic Studies Service - Economic Studies reports - Information and Early Warning System reports - Updated Agricultural Statistics Databases - Methodology / Guidelines document 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders
<p>7.1.7 Development of administrative and financial work, and research at the Lebanese Agricultural Research Institute</p>	<ul style="list-style-type: none"> - Implement the completed organisational structure - Fill the vacancies and employ the contracted staff - Activate the performance evaluation system - Conduct continuous administrative and financial trainings 	<ul style="list-style-type: none"> - The Organisational structure report - Training reports 	<ul style="list-style-type: none"> - Availability of required budget - Adoption of the organisational structure at the required level - Cooperation of stakeholders
<p>7.1.8 Reviewing, updating and adopting new legislation governing the cooperative work</p>	<ul style="list-style-type: none"> - Establish a committee for the review of the existing legislative texts - Prepare a draft proposal on new legislations and take the necessary measures to adopt these texts at the required level during year 2016 (20 meetings, legal expert for 5 months) 	<ul style="list-style-type: none"> - Report of the proposal of new legislation - Draft new legislative texts 	<ul style="list-style-type: none"> - Adoption of legislation at the required level - Cooperation of stakeholders
<p>7.1.9 Continue reviewing and updating the legislation governing the mutual funds work</p>	<ul style="list-style-type: none"> - Establish a committee for the review of the existing legislative texts and Statute and Internal regulations of the Mutual Funds - Prepare a draft proposal on new legislations and take the necessary measures to adopt these texts at the required level during year 2016 (20 meetings, legal expert for 5 months and international experts for 30 days) 	<ul style="list-style-type: none"> - Report of the proposal of new legislation - Draft new legislative texts 	<ul style="list-style-type: none"> - Adoption of legislation at the required level - Cooperation of stakeholders

<p>7.1.10 Reviewing, updating and adopting new legislation and internal regulation of the General Directorate of Cooperatives</p>	<ul style="list-style-type: none"> - Establish a committee for the review of the existing legislative texts and the organisational structure of the General Directorate of Cooperatives - Prepare a draft proposal on new legislations and take the necessary measures to adopt these texts at the required level during year 2018 (15 meetings, legal expert for 3 months and administrative expert for 3 months) 	<ul style="list-style-type: none"> - Report of the proposal of new legislation - Draft new legislative texts 	<ul style="list-style-type: none"> - Adoption of legislation at the required level - Cooperation of stakeholders
<p>7.2 Developing MoA capacities in negotiation skills</p>			
<p>7.2.1 Activating the coordination and cooperation with the international organisations and donors to elaborate a shared framework <i>(Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Conduct trainings on negotiation and communication skills (20 days for 20 trainees; international experts for 40 days) - Share information, reports and plans - Prepare a study on the donors' financed agricultural projects and their thematic coverage, geographic distribution, etc. (Local expert for 2 months) - Carry out a number of annual coordination meetings to elaborate common programmes and follow-up the implementation 	<ul style="list-style-type: none"> - Training reports - Minutes of meetings - Study report 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders - Availability of the required expertise
<p>7.2.2 Activating MoA role in the international agreements and conventions in order to improve the foreign trade, decision making and international standard setting</p>	<ul style="list-style-type: none"> - Conduct a training on negotiation and communication skills in the area of international trade and particularly preparation of files (5 days for 30 trainees) - Conduct yearly trainings on the Rules of Origin and related topics (4 days for 30 trainees yearly) - Conduct a training on international agreements and foreign trade (5 days for 30 trainees) - Study and analyse the international agreements and conventions and their impact on agriculture and foreign trade (experts for 6 months) - Send missions to represent Lebanon in the reviewing and setting international standards and agreements - 	<ul style="list-style-type: none"> - Training reports - Study report - Missions reports 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders - Availability of the required expertise

7.3 Fostering partnerships with various stakeholders from the private and public sectors			
<p>7.3.1 Activating partnerships with the private sector and related administrations including the National Sectoral Committees within MoA</p> <p><i>(Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Review and amend the decisions of the establishment of National Sectoral Committees and propose a legal formula that defines the powers and functions of the committees and the privileges and incentives that will be given to their respective members - Prepare an action plan for the committees - Carry out meetings (4 yearly) - Elaborate and implement participation frameworks - Provide recommendations for the development of the respective sectors 	<ul style="list-style-type: none"> - Committees reports 	<ul style="list-style-type: none"> - Availability of required budget - Adoption of the organisational structure at the required level - Cooperation of stakeholders
<p>7.3.2 Coordination with the local partners, municipalities, civil society working in the field of rural and agricultural development</p> <p><i>(Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Survey the local partners according to geographical coverage and areas of intervention - Establish a communication network between the local partners - Elaborate and implement participation frameworks - Carry out meetings 	<ul style="list-style-type: none"> - Survey report - Minutes of Meeting 	<ul style="list-style-type: none"> - Cooperation of stakeholders
7.4 Strengthening MoA capacities in disaster and crises management			
<p>7.4.1 Elaborating a response plan for disasters and crises affecting agriculture</p> <p><i>(Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Establish a committee to prepare a response plan for disasters and crises affecting agriculture - Prepare a response plan for disasters and crises affecting agriculture including preparedness, management and adaptive measures 	<ul style="list-style-type: none"> - Response plan 	<ul style="list-style-type: none"> - Cooperation of stakeholders
<p>7.4.2 Creating a Disaster and Crises Management Unit</p> <p><i>(Related to the Course of Action 8: Responding to climate change impacts)</i></p>	<ul style="list-style-type: none"> - Prepare an organisational structure for the unit - Prepare the new legislative texts for the new organization, including premises and budget - Establish an Emergency Committee that convenes when a disaster or crisis occurs 	<ul style="list-style-type: none"> - New legislative texts - Unit reports 	<ul style="list-style-type: none"> - Availability of required budget - Cooperation of stakeholders

Expected results/courses of action	Objectively Verifiable Indicators	Sources of verification	Risks / Assumptions
8. Responding to climate change impacts	- Percentage of legislation that take into consideration the climate change	- Periodic reports of the General Directorate of Agriculture	- Awareness about the impact of climate change on sustainable development
Components			
Areas of intervention	Means of implementation	Sources of verification	Risks / Assumptions
8.1 Facing the challenges posed by the climate change			
8.1.1 Mainstreaming of the Ministry of Agriculture activities related to climate change	<ul style="list-style-type: none"> - Establish a Climate Change Committee that include the Mutual Fund for the insurance of the agricultural sector against natural disasters, agriculture research, MoA, Ministry of Environment, CNRS, and others, with the mandate to steer all climate change adaptation efforts and initiatives (4 meetings per year) - Coordinate climate change mitigation through afforestation, rational use of fertilizers, recycling of farm wastes in to compost of energy - Identify in depth research priorities of the impact of the climate change on the main agricultural sectors 	- Minutes of meeting	- Cooperation of stakeholders
8.1.2 Introducing adaptation measures in the work of the Ministry of Agriculture	<ul style="list-style-type: none"> - Prepare an inclusive guide on the response and adaption measures - Take into consideration the climate change while preparing new programmes, projects and legislations 	- Number of legislation take into consideration the climate change	- Cooperation of stakeholders
8.1.3 Estimating greenhouse gas emissions from the agricultural sector, land use changes and forestry	<ul style="list-style-type: none"> - Train a group of MoA staff - Conduct the study and provide recommendations 	- Study report	- Cooperation of stakeholders

ANNEX 2: REQUIRED INVESTMENT BUDGET

Courses of action and components	In Billions of LBP
1. Improve food safety and quality of locally produced and imported products	5.50
1.1 Provision of safe and quality food from domestic production	4.24
1.2 Provision of safe and quality food from imports	1.15
1.3 Contribution to the formulation of a food safety policy	0.11
2. Increase productivity and competitiveness of the Lebanese agricultural products	246.16
2.1 Improving the value chains and increasing the value-added for products of plant origin	11.62
2.2 Improving the value chains and increasing the value-added for products of animal origin	171.57
2.3 Strengthening the phytosanitary measures	9.05
2.4 Strengthening the animal health measures	9.45
2.5 Increasing agricultural exports	3.11
2.6 Enhancing internal marketing channels	5.60
2.7 Developing national plans for the conservation and expansion of agriculture and irrigated areas	35.54
2.8 Improving legal status of farmers and farmers organizations	0.09
2.9 Providing support to small-scale farmers and producers, and encouraging youth and women to engage in agriculture-related investments	0.13
3. Improve the good governance and sustainable use of natural resources	164.88
3.1 Strengthening good management and sustainable use of forests	59.00
3.2 Promoting sustainable investment and management of pasturelands	3.96
3.3 Improving the management of medicinal and aromatic plants and wild fruit trees sector	0.13
3.4 Supporting investment in the fisheries & aquaculture improving sustainable management of the sector	37.04
3.5 Modernizing the irrigation system in Lebanon and promoting the use of alternative sources of water and energy in agriculture	64.75
4. Strengthening agricultural extension and education	10.59
4.1 Development of a pluralistic extension system	1.80
4.2 Activation of the official technical agricultural education according to market demand	8.79
5. Strengthening agricultural research and laboratories	21.95
5.1 Developing and strengthening capacities of LARI laboratories	17.19
5.2 Enhancing agricultural scientific research	3.71
5.3 Improving the conservation of biodiversity and genetic resources	1.04
6. Development of the cooperative sector and mutual funds	37.70
6.1 Improving and strengthening the General Directorate of Cooperatives capacities	38.54
6.2 Evaluating the status of cooperatives and mutual funds	0.00
6.3 Re-activating the Cooperative Credit Union and the General National Union of Cooperative Associations	0.01
6.4 Supporting and activating the mutual fund for the insurance of agricultural sector against natural disasters	0.15
7. Development of the Ministry of Agriculture capacities	8.87
7.1 Updating the organizational structure and reinforcing the role of MoA including General Directorate of Cooperatives and LARI, and updating the existing legislations and regulations governing the agricultural sector and MoA	8.15
7.2 Developing MoA capacities in negotiation skills	0.24
7.3 Fostering partnerships with various stakeholders from the private and public sectors	0.48
7.4 Strengthening MoA capacities in disaster and crises management	0.00
8. Responding to climate change impacts	0.05
8.1 Facing the challenges posed by the climate change	0.05
TOTAL	496.69