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PROCESSED FOODS VALUE CHAIN ASSESSMENT REPORT

LEBANON INDUSTRY VALUE CHAIN DEVELOPMENT (LIVCD) PROJECT

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**LEBANON INDUSTRY VALUE CHAIN DEVELOPMENT (LIVCD)
PROJECT**

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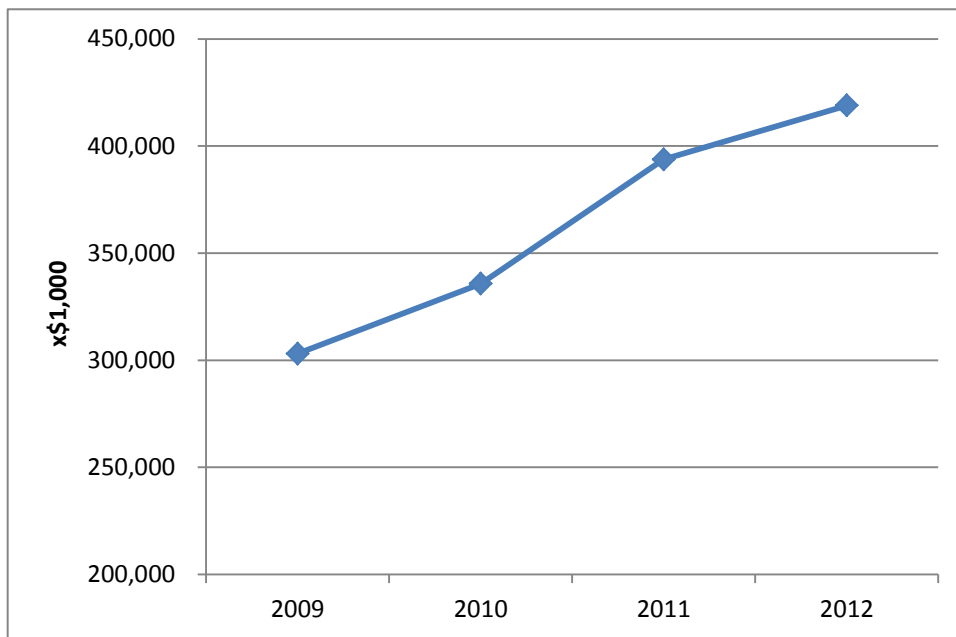
1. OVERVIEW

Processed foods are classified in sections 3 and 4 of the Harmonized System (HS) code systems under chapters 15 to 23. They are also included in section 15 of the International Standards Industrial Classification (ISIC) under chapter 1598. These classifications include animal fats, oils, processed meat, fish and poultry, processed fruits, vegetables, and beans, as well as drink concentrates and bottled water.

Lebanese exports of processed foods increased at an annual average of 13 percent from 2009 through 2012 from \$303 million to \$419 millionⁱ with a potential significant increase in the next few years as a result of the Syrian crisis that has significantly impacted the competing Syrian food industrial sector. Lebanese processed food exports averaged seven percent of total exports between 2009 and 2012, which represents a reduction from 11.5 percent from 2000 and 8.6 percent in 2008.

As a comparison, Lebanon imports three times the value of processed foods that it exports; reaching a value of \$885 million in 2009 and \$1.2 Billion in 2012.

FIGURE 1: VALUE OF EXPORTS OF PROCESSED FOODS



Data Source: Lebanese Customs

FIGURE 2: IMPORTS & EXPORTS OF PROCESSED FOODS



Data Source: Lebanese Customs

Based on a survey conducted in 2007 by the Syndicate of Lebanese Food Industrialists (SLFI) and UNIDO, there are 736 registered foods processing enterprises in Lebanon that employ five or more workers. This represents 18 percent of all industrial companies retaining 20,607 employees, or 25 percent of the total industrial workforce. In 2007 these companies had an output of \$1.75 billion with 27 percent of the country's total value added. According to SLFI estimates, there are over 2,000 food processing companies today in Lebanon. If all of these food processors are taken into consideration, including those that employ less than five workers and those that are not registered, then, according to Chambers of Commerce, the output of the processed foods industry exceeds \$3 billion which accounts for 7 percent of Lebanon's total GDP.

The LIVCD assessment is organized into five sections. The first of these covers the process by which we narrowed down the multitude of processed food products in order to choose four illustrative cases for further detailed analysis. The second part of the paper provides a more detailed analysis of the four specific processed food products that remained after the selection process: jams, pickled vegetables, dairy products, and ready-to-eat prepared meals. The third section addresses relevant factors in the business enabling environment. Finally, the fourth section provides an overview of LIVCD's proposed upgrading strategy for processed foods.

SWOT ANALYSIS

Strengths:

Lebanon's geographic location makes the Gulf & EU markets easily accessible

Lebanese cuisine is highly recognized among Arab consumers,

Lebanese food processors were pioneers in the region and have several well recognized and leading brand names.

Factories have the flexibility to produce and ship many SKU's

Lebanon being a Mediterranean country with an old history provides good material for a product story, which along with attractive packaging can have an impact; story of the product can make a big difference in whether the product is successful.

Lebanese business owners have good international exposure and experience.

Weaknesses:

Old facilities that were not set up to meet modern international food safety standards. Upgrading cost is very high. In a previous USAID project, this cost was estimated at an average of \$100K.

Old and outdated equipment that affect quality, capacity, and productivity.

High operating cost relative to neighboring countries that provide similar products

Product quality is not to par with average selling price (ASP). ASP is relatively high for ethnic markets, yet quality is not adequate for high value markets.

Opportunities:

Being a Mediterranean cuisine, Lebanese processors can benefit from the growing awareness of Mediterranean cuisine in international markets.

Large Lebanese Diaspora that tend to be affluent and with strong social interconnections with specialty food consumers in high value markets

Threats:

Regional countries are investing in their processed foods industry which is leading to serious competition

International markets are requiring food processors to meet international food safety standards.

High level of insecurity and political instability.

VISION FOR THE FOOD PROCESSING VALUE CHAIN

The processed foods value chain will grow by increasing exports to existing markets through high value channels and by entering new markets and replacing imports in the local market. The value chain will see increased integration of small and medium processors and better vertical and horizontal cooperation among actors. To achieve this vision, the project will:

- Take a coherent, multifaceted, market pull approach at the export level that will focus on high value channels that Lebanese products have a high potential to succeed in; seek relevant market intelligence and Identify the most appropriate market entry channels in new markets and prepare food processors to enter target markets through these channels.
- In the local market, the project will assist food processors in replacing imported food items that Lebanon can competitively and sustainably produce.
- Support small and medium food processing enterprises in customizing products in terms of variety, quality, packaging, technical and regulatory requirements in order to adapt to market expectations.
- Increase participation of small and medium processors through financing and co-financing packages through Public Private Partnerships in conjunction with the private sector.
- Increase procurement of local inputs and integrate micro, small, and medium enterprises in the processed foods value chain through manufacturing contracts, co-manufacturing, and other schemes.
- Maximize project impact by leveraging existing resources already developed by donor-funded projects, especially those funded by USAID.

Assessment of the difficulty, and probability of success for LIVCD to address the constraints within the processed foods VC:

As mentioned in the SWOT analysis, there are several constraints that exist in the processed foods VC; some of these cannot be addressed by LIVCD. These include the country's political instability, the country's poor infrastructure, and the high cost of operation. However, these constraints do not limit the project's ability to create successes within the value chain that be built upon. Even with these constraints, some companies have built sustainable successful models. With proper intervention that addresses selected constraints, LIVCD can create a measureable and sustainable impact.

SELECTION OF PROCESSED FOOD

The label “Processed Foods” covers an extremely wide variety of items. The goal of this study is to identify and assess possibilities for productive interventions by LIVCD in a small sub-set of processed foods- particularly where they have the potential to build on supply linkages to the domestic agricultural sector. Given the wide diversity of processed foods and the necessity of focusing possible interventions on concrete cases to yield meaningful analysis, it was necessary to engage in an initial analysis to identify and narrow down specific target processed food products that are analyzed in the second part of this assessment. The first section describes the analytical process used to focus on four target products described in detail. The selection process has two distinct phases: a first phase that analyzes data at the ISIC level for all economic activities, to identify larger categories of processed foods for further investigation, and a second phase to select individual products within the retained ISIC codes through a process of scoring on a range of specific criteria designed to assess the fit between different products and LIVCD priorities and capacity for intervention.

PHASE 1: RANKING BROAD CATEGORIES OF PROCESSED FOODS

To narrow the field of broad groups of processed foods we started by considering all the four digit ISIC codes in Table 1 below under the category of manufactured food products (Division 10). These categories formed the entire universe for the study.

TABLE 1: ISIC STRUCTURE- SECTION C MANUFACTURING

Section C
Manufacturing

Division	Group	Class	Description
Division 10			Manufacture of food products
	101	1010	Processing and preserving of meat
	102	1020	Processing and preserving of fish, crustaceans and molluscs
	103	1030	Processing and preserving of fruit and vegetables
	104	1040	Manufacture of vegetable and animal oils and fats
	105	1050	Manufacture of dairy products
	106		Manufacture of grain mill products, starches and starch products
		1061	Manufacture of grain mill products
		1062	Manufacture of starches and starch products
	107		Manufacture of other food products
		1071	Manufacture of bakery products
		1072	Manufacture of sugar
		1073	Manufacture of cocoa, chocolate and sugar confectionery
		1074	Manufacture of macaroni, noodles, couscous and similar farinaceous products
		1075	Manufacture of prepared meals and dishes
		1079	Manufacture of other food products n.e.c.
	108	1080	Manufacture of prepared animal feeds
Division 11			Manufacture of beverages
		1101	Distilling, rectifying and blending of spirits
		1102	Manufacture of wines
		1103	Manufacture of malt liquors and malt
		1104	Manufacture of soft drinks; production of mineral waters and other bottled waters

Next, we collected data on five objective data-driven selection criteria for all the four digit ISIC codes with a one to four ordinal scale scoring as follows:

Criteria 1: Value of production. This simply measures the aggregate value of production for each ISIC code with data from the Ministry of Industry that was published in 2010. Since the available data were from 2007, we have inflated it at the average rate of GDP growth to yield estimates of 2011 production levels to make these data comparable with the most recent trade data used in the other selection criteria. Larger numbers were ranked higher than smaller numbers.

Thresholds: Scores 1 to 4 by tranches of 25 percent based on the largest figure.

Criteria 2: Value of exports in 2011. This simply measures the absolute value of exports, as an indication of the potential for rapid scaling-up of project impact to improve competitiveness. Data are from TRADEMAP. Larger numbers are more highly ranked than smaller numbers.

Thresholds: Scores 1 to 4 by tranches of 25 percent based on the largest figure.

Criteria 3: Percentage change in Lebanese exports between 2009 and 2011. This provides an indication of the recent trend of exports, with larger numbers being ranked higher than smaller numbers. Data are from TRADEMAP. This provides an indication of the dynamism of Lebanese exports.

Thresholds: Above 30 percent = 4; 20 percent - 30 percent = 3; five percent - 20percent = 2; < 5 percent = 1

Criteria 4: Exports as percent of production. This is simply the ratio of Criteria 2 to Criteria 1. It serves to provide an indication of the importance of exports within the product category, indicating that there are significant links to wider international markets. Larger numbers are ranked higher.

Thresholds: Above 50 percent = 4; 25 percent - 50 percent = 3; 5 percent – 25 percent = 2, < 5 percent = 1

Criteria 5: Annual average growth in regional exports from 2009 to 2011. This provides an indication of the dynamism of regional markets and their eventual receptivity to Lebanese exports. Data is from TRADEMAP and larger numbers are ranked higher.

Thresholds: Above 25 percent = 4; 15 percent - 25 percent = 3; 5 percent - 15 percent = 2; < 5 percent = 1

The raw results of this data gathering process are shown below in Table 2.

TABLE 2: ISIC CATEGORY SCORING, RAW DATA

ISIC Code Rev. 4	Description	2011 PRODUCTION (thousands of \$)	2011 EXPORTS (thousands of \$)	% Change in Lebanese Exports Between 2009 and 2011	Exports as % of Production 2011	Annual Average Growth in Regional Imports (2009 to 2011)
1010	Production, processing and preserving of meat and meat products	\$176,689	\$17,698	2%	10%	24%
1020	Processing and preserving of fish, crustaceans and molluscs	n/a	\$1,162	-33%	n/a	14%
1030	Processing and preserving of fruit and vegetables	\$250,418	\$138,236	109%	55%	11%
1040	Manufacture of vegetable and animal oils and fats	\$74,795	\$21,454	14%	29%	15%
1050	Manufacture of dairy products	\$192,895	\$7,668	37%	4%	16%
106	Manufacture of grain mill products, starches and starch products	\$237,783	\$27,381	0%	12%	13%
1071	Manufacture of bakery products	\$258,452	\$12,541	-2%	5%	21%
1072	Manufacture of sugar	n/a	\$30,560	24%	n/a	44%
1073	Manufacture of cocoa, chocolate and sugar confectionery	\$86,374	\$62,312	39%	72%	15%
1074	Manufacture of macaroni, noodles, couscous, and similar farinaceous products	\$92,162	\$7,987	69%	9%	18%
1075	Manufacture of prepared meals and dishes	n/a	\$25,420	7%	n/a	11%
1079	Manufacture of other food products n.e.c	\$351,257	\$27,618	25%	8%	12%
1080	Manufacture of prepared animal feeds	\$31,632	\$3,492	274%	11%	-4%
1101	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented material	\$11,600	\$7,079	9%	61%	23%
1102	Manufacture of wines	\$58,327	\$13,249	15%	23%	36%
1104	Manufacture of soft drinks; production of mineral waters	\$441,700	\$53,316	67%	12%	-11%

Next, we took the raw data in table 2 and applied the scoring system described above to assign an average score to each ISIC code. These are shown with rankings from highest to lowest scores in Table 3 below.

TABLE 3: SUMMARY ISIC SCORING TABLE

AVERAGE SCORES- SORTED FROM HIGHEST AVERAGE SCORES TO LOWEST							
ISIC Code Rev. 4	Description	2011 PRODUCTION (thousands of \$)	2011 EXPORTS (thousands of \$)	% Change in Lebanese Exports Between 2009 and 2011	Exports as % of Production 2011	Annual Average Growth in Regional Imports (2009 to 2011)	Average
1030	Processing and preserving or fruit and vegetables	3	4	4	4	2	3.4
1072	Manufacture of sugar	n/a	1	4	n/a	4	3.0
1073	Manufacture of cocoa, chocolate and sugar confectionery	1	2	4	4	3	2.8
1079	Manufacture of other food products n.e.c	4	1	4	2	2	2.6
1104	Manufacture of soft drinks; production of mineral waters	4	2	4	2	1	2.6
1050	Manufacture of dairy products	2	1	4	1	3	2.2
1074	Manufacture of macaroni, noodles, couscous, and similar farinaceous products	1	1	4	2	3	2.2
1101	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented material	1	1	2	4	3	2.2
1040	Manufacture of vegetable and animal oils and fats	1	1	2	3	3	2.0
1071	Manufacture of bakery products	3	1	1	2	3	2.0
1102	Manufacture of wines	1	1	2	2	4	2.0
1010	Production, processing and preserving of meat and meat products	2	1	1	2	3	1.8
106	Manufacture of grain mill products, starches and starch products	3	1	1	2	2	1.8
1080	Manufacture of prepared animal feeds	1	1	4	2	1	1.8
1075	Manufacture of prepared meals and dishes	n/a	1	2	n/a	2	1.7
1020	Processing and preserving of fish, crustaceans and molluscs	n/a	1	1	n/a	2	1.3

With the average scores for each four digit ISIC category in Table 3 as our basic reference point, we then decided to retain the five ISIC codes marked in blue for deeper analysis. The decision regarding which ISICs to choose was based, not just on the numerical rankings, but also LIVCD's knowledge of the processed foods sector resulting in two specific choices that were not purely consistent with the ranking systems, including the following:

Decision 1: Eliminate from consideration ISICs 1072 (manufactured sugar) and 1104 (soft drinks and mineral waters) since they are populated by a small number of highly concentrated large industries that use mainly imported raw materials;

Decision 2: Include ISIC 1075 (ready-to-eat prepared meals) since this is a sector that has very high linkages to local agriculture and it is growing steadily due to an increase in demand by the domestic retail and food service industry and because of the high potential to capitalize on a favorable image for Lebanese foods in regional markets.

PHASE 2: SELECTING PROMISING PRODUCTS FROM WITHIN SELECTED ISIC CODE CATEGORIES

In the next selection phase, the team utilized its own mapping of four digit HS codes to four digit ISIC codes- provided in Annex 1- to conduct internal scoring of all the four digit HS code products in the five selected ISICs in order to attain a second ranking of products at the more detailed four digit HS code level. This action was taken based on three scoring criteria that were filled out using LIVCD expert knowledge of the processed food sector. Each of these criteria was ranked on a simple High=3; Medium = 2; and Low = 1 scoring scale. The criteria used are noted below:

Criteria 1: Importance of local raw material inputs. This criterion measures the degree to which Lebanese raw materials are used in the production process. Many processed food products in Lebanon rely mainly on imported raw materials-some of which can be replaced with local raw materials under certain conditions and some that cannot. The team did not specifically seek to adjust for this element of “potential” and scored purely on the basis of existing patterns.

Criteria 2: Relevance to rural populations. This criterion measures the degree to which rural populations are involved in the production of each product, either as employees or as producers and members of cooperative processors, often operating at the small industry scale.

Criteria 3: Value added. This criterion measures the degree of value addition in the product group-essentially the added value creation by the manufacturing process above the simple sum of material inputs. Some products such as chocolate have a very high value added in which the raw materials are small relative to the total value of output, while some products, such as jams, tend to have lower value added above the basic raw materials cost.

With the application of the above ranking criteria to all four digit HS code products under the five ISIC codes shaded in blue in Table 3, we obtained a ranking order that is shown in Table 4. We have retained the five top-ranked four digit HS codes in Table 4 that are drawn from three ISIC codes for further analysis in the second part of this study.

The final lists of products to be analyzed are:

- Jams and fruit preserves;
- Pickled vegetables;
- White cheese and ayran/lebneh/yogurt; and
- Ready-to-eat meals consisting mainly of traditional Lebanese items such as hummus and babaghannouj.

In the following analysis we have merged the two dairy products (Cheese and yoghurt/ayran/lebneh) since they are similar in terms of technical processing requirements and markets. We also decided to not include roasted nuts despite having the same score as the dairy products simply because we are unable to cover more than four products in detail and roasted nuts rely mainly on imported raw materials.

TABLE 4: RANKING OF 4-DIGIT HS CODES

ISIC Code Rev. 4	HS Code	HS Description	Description, and Products	Local Raw Material Input (High / Medium / Low)	Rural Population Linkages (High / Medium / Low)	Value Added	Additional Comments	Rank
1075	0207-14, 0304-99, 0206-90, 0710-90, 2005-59, 170490	Ready to eat meals	Ready to eat meals, includes traditional Lebanese cooked dishes and Hummos, Babaghannouj, Fresh Cut vegetables...	3	2	3	Processes and products need to be further developed. Fresh Cut vegetables with salad dressing: Has high local and export market potential to GCC. Could be combined with "Lebanese Dressing" that include olive oil, herbs, and lemon juice.	2.7
1030	2001	Pickled vegetables	Pickled vegetables	3	3	2	should be developed on the processing side as well as product development aspect.	2.7
1030	2007	Jams, fruit jellies, marmalades, fruit or nut puré	Jams, fruit jellies, marmalades, fruit or nut puré	3	3	2	Has positive impact on cooperatives and artisanal processors. Limited markets and limited to certain varieties . Need to develop new products for high value, niche markets	2.7
1050	0403, 0406	Cheese and curd	Focus on white cheese, Labneh and Ayran	2	3	2	Low entry barrier. Can be processed by small firms and coops. Inconsistent milk supply; Potential to increase exports. Need product and process development to improve shelf life, product variety	2.3
1030	2008	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.	Mainly roasted nuts	1	3	3	Strong Exports, high differentiation of Lebanese nuts vs. non Lebanese, High added value, Low barrier to entry. Enhances image of Lebanese food specialties.	2.3
1079	190110	Preparations for infant use, put up for retail sale	Baby food	2	1	3	emerging products low leverage; requires heavy marketing	2.0
1030	2006	Vegetables, fruit, nuts, fruit-peel and other parts of plants, preserved by sugar (drained, glacé or crystallised).	Galzed fruits	2	2	2	Good for Artisanal, but need to upgrade process and quality of product. Low availability of raw material to compete on an industrial level	2.0
1030	2004	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen, other than products of heading No. 20.06.	Frozen semi processed foods that are not ready to eat.	1	3	2	Frozen; semi cooked. Limited to certain items.	2.0
1030	2005	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen, other than products of heading No. 20.06	Canned foods	1	3	2	Canned. Limited to certain items:	2.0
1073	1806	Chocolate and other food preparations containing cocoa.	Chocolates	1	2	3	good export potential;	2.0
1079	0910.99.90	Mixed Spices	Spices	1	2	3	demand in diaspora markets and GCC	2.0
		Tahina1	Tahina	1	2	3	High local and export demand	2.0
1075	0710	Frozen vegetables	Frozen vegetables	1	2	2	Absence of consistent raw materials	1.7
1075	0712	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.	Dried vegetables	1	2	2	no apparentmarket	1.7
1075	1105	Flour, meal, powder, flakes, granules and pellets of potatoes.	Flour	1	1	3	one factory in Lebanon importing potato starch	1.7
1075	2002	Tomatoes prepared or preserved otherwise than by vinegar or acetic acid.		1	2	2	absence of industrial variety of tomatoes	1.7
1075	2003	Mushrooms and truffles, prepared or preserved otherwise than by vinegar or acetic acid.		1	1	3	Requires sophisticated process ;however market is there.	1.7
1030	2009	Fruit juices		1	2	2	limited quantities;limited to fresh product	1.7
1073	1704	Sugar confectionery (including white chocolate), not containing cocoa; excluding halawa		1	2	2	artisanal level	1.7
1079	0901	Coffee, whether or not roasted or decaffeinated;		1	1	3	added value to an imported commodity	1.7
1079	0903	Maté.		1	1	3	added value to an imported commodity	1.7
1050	0404	Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included.		1	2	2	Whey used locally for cheese	1.7
1061	1904	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal), pre-cooked, or otherwise prepared, not elsewhere specified or included.		1	1	2	controversial product;high international competition	1.3
1079	0902	Tea, whether or not flavoured.		1	1	2	added value to an imported commodity	1.3
1079	0904	Pepper of the genus Piper; dried or crushed or ground fruits of the genus Capsicum or of the genus Pimenta		1	1	2	added value to an imported commodity	1.3
1079	0905	Vanilla		1	1	2	added value to an imported commodity	1.3
1079	0906	Cinnamon and cinnamon-tree flowers.		1	1	2	added value to an imported commodity	1.3
1079	0907	Cloves (whole fruit, cloves and stems).		1	1	2	added value to an imported commodity	1.3
1079	0908	Nutmeg, mace and cardamoms.		1	1	2	added value to an imported commodity	1.3
1079	0909	Seeds of anise, badian, fennel, coriander, cumin or caraway, juniper berries.		1	1	2	added value to an imported commodity	1.3
1050	0405	Butter and other fats and oils derived from milk; dairy spreads.		1	1	2	practically non-existent	1.3

1. DETAILED ANALYSIS OF SELECTED PROCESSED FOODS

JAMS

1.1 Product Definition

Jam products which include marmalades, preserves, and jellies are produced from the mixture of sugar and fruit.

They are categorized into jams, preserves, jellies, and marmalades. They are defined by the codex Alimentarius as follows:

1. "Jam" or "Preserves" or "Conserves" is a product brought to suitable consistency, made from the whole fruit, pieces of fruit, regular and/or concentrated fruit pulp or fruit puree, of one or more kinds of fruit that is mixed with foodstuffs with sweetening properties, with or without the addition of water.
2. "Jellies" are products brought to a semi-solid gelled consistency and made from juice and/or aqueous extracts of one or more fruits, mixed with foodstuffs and sweetening properties with or without the addition of water; the product is prepared from a suitable fruit ingredient.
3. "Marmalade" is a product obtained from a single or a mixture of citrus fruits and brought to a suitable consistency. It may be made from one or more of the following ingredients: whole fruit or fruit pieces- which may have all or part of the peel removed, fruit pulp, puree, juice, aqueous extracts, and peel. It is mixed with foodstuffs with sweetening properties, with or without the addition of water.
4. "Non-citrus marmalade": is a product prepared by cooking fruit, whole, in pieces, or crushed adding foodstuffs with sweetening properties to obtain a semiliquid or thick liquid.
5. Jelly Marmalade: is a product described under citrus marmalade from which all the insoluble solids have been removed, and may or may not contain a small proportion of thinly cut peel.

International quality parameters for jams include specifications for "extra jam," "preserves" or "high-fruit jam" for which the final product is manufactured from not less than 45 percent, by weight, of the original fruit ingredient, exclusive of any added sugar or optional ingredients.

For jam or "low-fruit jam", "light jam" or "fruit spread," the product shall be manufactured from not less than 33 percent, by weight, of original fruit ingredients, exclusive of any added sugar or optional ingredients used in the preparation of the fruit ingredient.¹ The major types of jams produced in Lebanon are given in Table 5 below.

TABLE 5: LEBANESE JAM PRODUCTS

Types of jam	Varieties produced in Lebanon
Jam or preserve	Apricot, Strawberry, Fig, Cherry, Quince, Pumpkin, Eggplant

¹ Quince jams and jellies have slightly different allowable fruit weight thresholds.

Jelly	Quince
Marmalade	Orange, Apple, Quince, Apricot and a mixture of fruits
Jelly Marmalade	Bitter orange jam.

The main jam items produced in Lebanon are apricot, strawberry, fig, quince, cherry, and bitter orange. There is also a variety of traditional jams that are labor intensive and produced by small processors and cooperatives such as dates rose petal, whole fig, pumpkin, and eggplant jams. Looking at this sector over the last 15 years, it is clear that there has been significant replacement of imports by local production; especially when the packaging shifted from the one kg tin to the 450g glass jar. Today you can still find imported items from Europe and the U.S., however they constitute a smaller share of the retail market; (approximately 30 percent by volume; based on 2009 data) and are more expensive than Lebanese jams, which indicates the potential for high quality Lebanese jams to further replace imports. Total jam imports represent 47% of the local jams market with Egyptian and Saudi jams capturing approximately 16% of the retail market.

In 2012, Lebanon produced 4,362 tons of jam which represents an increase of 33 percent relative to 2009, while exports increased in value by 72 percent in 2012 compared to 2009.

1.2 VALUE CHAIN ACTORS

The major actors in the jam value chain are listed below:

Raw material suppliers these are mainly small farmers, wholesalers in the major wholesale markets, and importers.

Aggregators/damans are either farmers themselves or traders who also buy from other farmers or traders that purchase the fruit while still on the trees- one to two months before the season starts based on available potential markets.

Semi-processors These are growers, or damans who have a cold storage facility for freezing and storing excess raw material (fruits) to sell out of season to jam producers as well as canners, ice cream manufacturers, and pastry shops.

Industrial Processors: there are two main types of industrial processors.

Medium to Large Industrial processors There are seven major companies producing jam along with other products during the various fruit seasons. Some of them even import some fruits to extend the range of their product offering. The average output of large companies is approximately 400 tons of jam per season, while small companies average around 50 to 150 tons per season. Processing companies in general employ between 15 and 150 workers, excluding seasonal workers. Utilized capacity during the peak season ranges between 40 to 60% indicating that with little investments, these companies can easily double their output.

Most of the factories rely on automated or semi-automated lines with a high capacity of production varying between three to 10 tons per shift. Factories with automated lines still need significant labor inputs, especially for sorting and trimming raw fruit. Several factory owners have stated their interest in subcontracting these activities to their suppliers or a third party. The project could potentially link the interested companies to cooperatives who would perform these services at a lower cost than processors can provide.

Small Industrial Processors These are highly developed artisanal producers having a large range of products as well as good brand and distribution channels. Their capacity does not exceed one metric ton per day. The work is labor intensive and has the capacity to produce complex products requiring manual input. These processors along with rural cooperatives produce approximately 1,000 tons of jams.

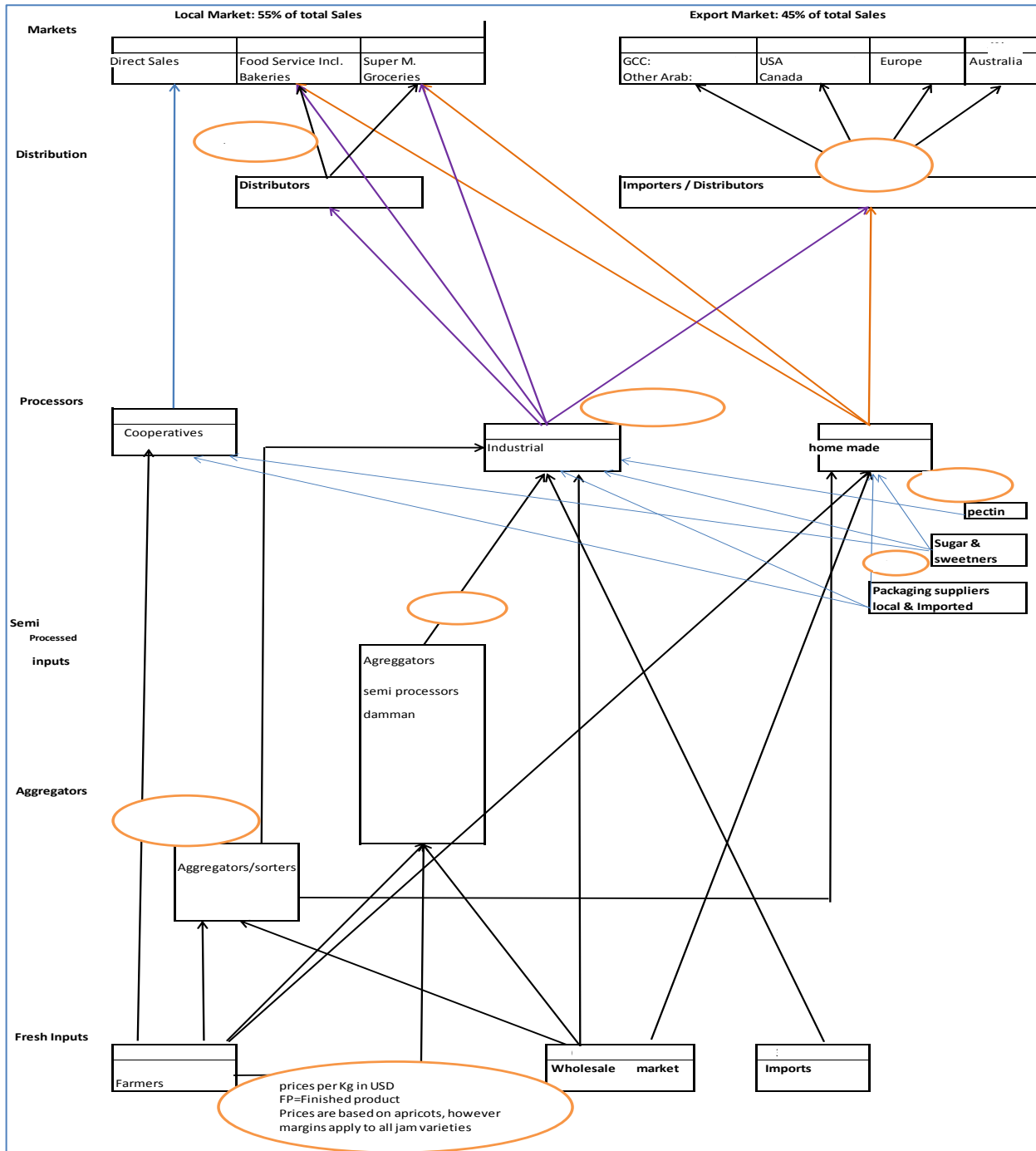
The quality of the end product can vary depending on the industrial processors specific formulations. The product obtained can be standard and consistent in quality especially through the utilization of pectin (for consistency and citric acid for acidity)

Rural Agricultural coops. These are usually linked to one or few villages in the rural area with members varying between 10 and 50, most of whom are women. Many coops have been equipped with tools to prepare jam through donor projects. Some of the coops are active and quality oriented and others are much weaker and are just striving to keep their members. These weaker coops have serious human resource problems in developing and retaining skilled workers for processing. The type of equipment used at this level is that found in industrial kitchens and is far from being automated. The production is very much labor dependent and consistency, even though difficult to attain, is possible with the right skills and vigilance. The overall productive capacity of the coops is considered small if it is to be compared to the industrial and small producers mentioned above, but is well adapted to manual operation. Although coops and commercial producers basically produce similar product lines, the more labor intensive jam products, such as bitter lemon jams, eggplant jams and date jams are mainly produced mainly by coops.

Homemade processors These are playing a considerably smaller commercial role because of the development of cooperatives and the shift in purchasing habits of consumers and the migration from rural to urban areas.

An overview of the value chain appears in the map given below in Figure 3.

FIGURE 3: JAM VALUE CHAIN MAP



1.3 PRODUCTION PROCESS

Input requirements for jams are basic, consisting mainly of packaging materials and raw fruit. The main packaging material inputs are imported glass jars that are available from the major local supplier. Available sizes and shapes tend to be fairly limited. Tin cans are also imported through one single local supplier. Traditionally, Lebanese processors used tin cans for packaging jams, however in the last 10-15

years tin cans were replaced for the most part by glass jars. Packaging lines range from manual packing to fully automated packaging and pasteurization lines.

Jams are one of the rare processed food products where the raw material comes almost entirely from local agricultural products. Raw materials such as apricots, strawberry, figs, quince, and cherries, are purchased from the wholesale market or directly from farmers through Daman or lead farmers. In some cases companies might import some frozen fruits or puree to use in their jams if the season is low or prices are high, or in order to produce a non-citrus marmalade. The best quality jams come from using the right variety of fresh fruits, in the right proportion, having the right ripeness (sugar content) and that are well sorted and properly cleaned. It is important to mention that jam variety fruits are not necessarily the same as those sold at the wholesale market.

The production processes for fruit jams is quite simple. The technology used can be very primitive and configured to deliver small batches- such as some rural cooperatives- or it can be more sophisticated, with automation utilized by the medium and large processors.

The process of jam production might differ from one fruit to another, though the principle is the same. It works as follows:

- Reception and storage of the fruits;
- Sorting and washing of the fruits;
- Trimming, pitting, defoliating, cutting or halving the fruits depending on the type of fruits;
- Sorting of the treated fruit; and
- Weighing fruits and sugar, as well as other ingredients.

Fruit jam processing operations used by cooperatives and homemade processors are performed using an open kettle that has a maximum batch size of 50 to 100 kg. In this type of line, fruits and sugar and other flavoring ingredients are simply mixed in a kettle and boiled until the product is concentrated to the right brix measure (soluble sugar concentration). Temperatures in this process can reach as high as 105⁰ C. Industrial processors use a vacuum kettle process in which fruit, sugar and flavoring ingredients are combined in a mixer and then drawn into a vacuum kettle where they are heated in two separate stages. First there is heating at a low temperature (70⁰ C) to foster evaporation of water and then a shorter higher temperature (90⁰ C) heating period in which the jam is pasteurized. Vacuum kettle processing has a maximum batch size of 1,500 kg.

Filling processes are largely the same for both open and vacuum kettle processes. First the hot jam is filled into the clean, slightly pre-heated glass jar in order to avoid glass breakage. The hot filling is important to have a good preservation of the jam and in order to avoid further re-heating in the pasteurizer. Next the jars are tightly closed with metallic covers, usually of the twist-off type. The jars are then either tipped on their covers to pasteurize the cover with the hot jam or they pass under a heating tunnel for a short time in order to assure sterilization of the cover. After the hot fill, closing and cover-sterilization phase, the jams are cooled. When in glass jars, cooling is gradually done to avoid glass breakage as a result of the heat shock. It is not necessary to take these steps when using tins. After pasteurization the jars are dried and stored in a cool and dry place or labeled and boxed and then sent to market.

Considering that jams produced from fresh fruits are seasonal, jam processors must address the issue of raw product availability during the period of the year when no fresh fruit is available. The harvest period

for apricots is three weeks, for figs 45 days, for strawberries three months, and for cherries about 45 days. In order to avoid large inventory of finished jam and in order to avoid product deterioration as a result of storage in warm temperatures, processors prepare frozen semi-processed raw materials that can be used for jam any time of the year after thawing. This works very well for strawberries and other berries. It could also work for apricots; however this is not generally done in Lebanon and would require more investigation to ensure technical feasibility. Some companies subcontract the treatment and freezing of the fruits to farmers who are willing to provide these services.

The impact of labor on jam production is significant; especially at the upstream section of the production process at the level of sorting, washing, and pitting or cutting. Only a few medium and large processors rely on automated jam lines with vacuum cooking. These companies focus on large scale production benefiting from economies of scale and covering mainstream local and export markets. While rural cooperatives and small companies target niche local markets and distinguish themselves from industrial companies by using local fruits and traditional recipes, in addition to labor intensive processing. Some of the small companies such as Mymoune and AnNabil, have invested in packaging and labeling and have been able to reach niche export markets such as the specialty food market in the U.S.

Initial fixed investment can be a function of the capacity needed. It could start with as little as \$20,000 to \$30,000 and can run up to a million dollars.

1.4 MARKETS

Domestic Market

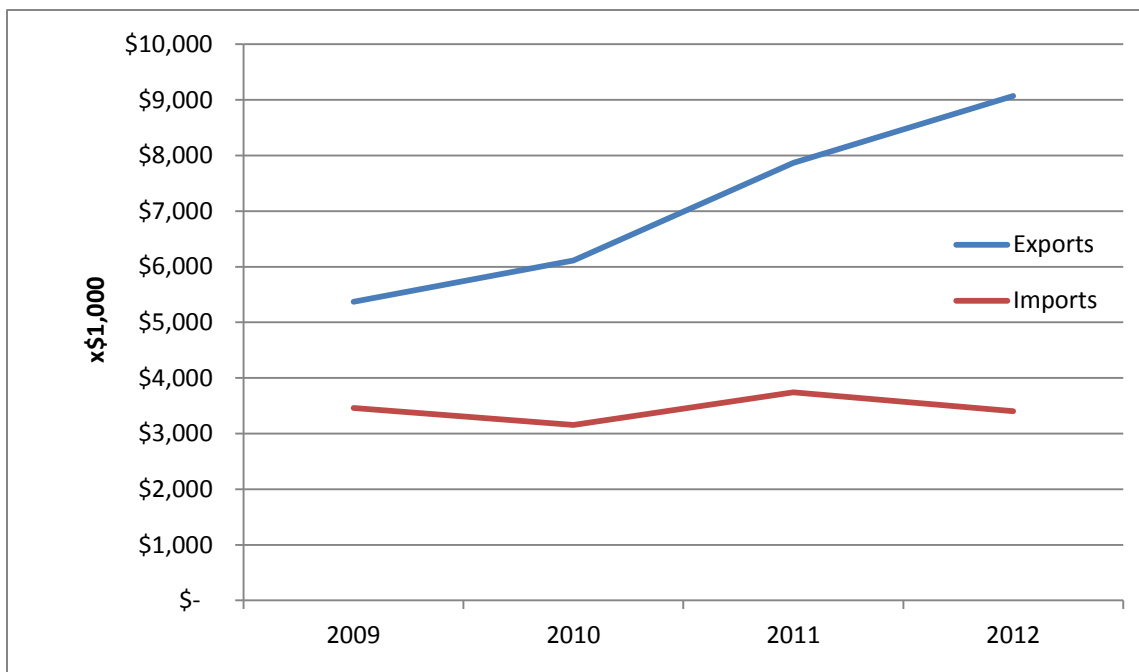
Despite its advantage in fruit production, Lebanon still imports a significant amount of packaged jam from countries such as France, Belgium, U.S., and Egypt. In 2012, according to Lebanese customs, Lebanon imported 2,375 tons of different jams having a value of about \$3.4 million. These figures are in addition to local production estimated at 4,405 tons, with 54 percent sold in the local market. The jam varieties sold in the local market are apricot jam (41 percent); strawberry (17 percent); fig (12 percent), apple (25 percent), quince (3 percent), and other varieties (2 percent).

Lebanese jam processors have eaten away the share of imports by developing a range of products in glass jars. Initially jam production was limited to tin cans, which was limited mainly to apricot and strawberry jams. This trend is continuing, though at a slower pace as the market is often flooded with cheap Egyptian origin product under an international brand such as “Hero”, or an even cheaper product under the Egyptian brand “Vitrac.”

Export Market

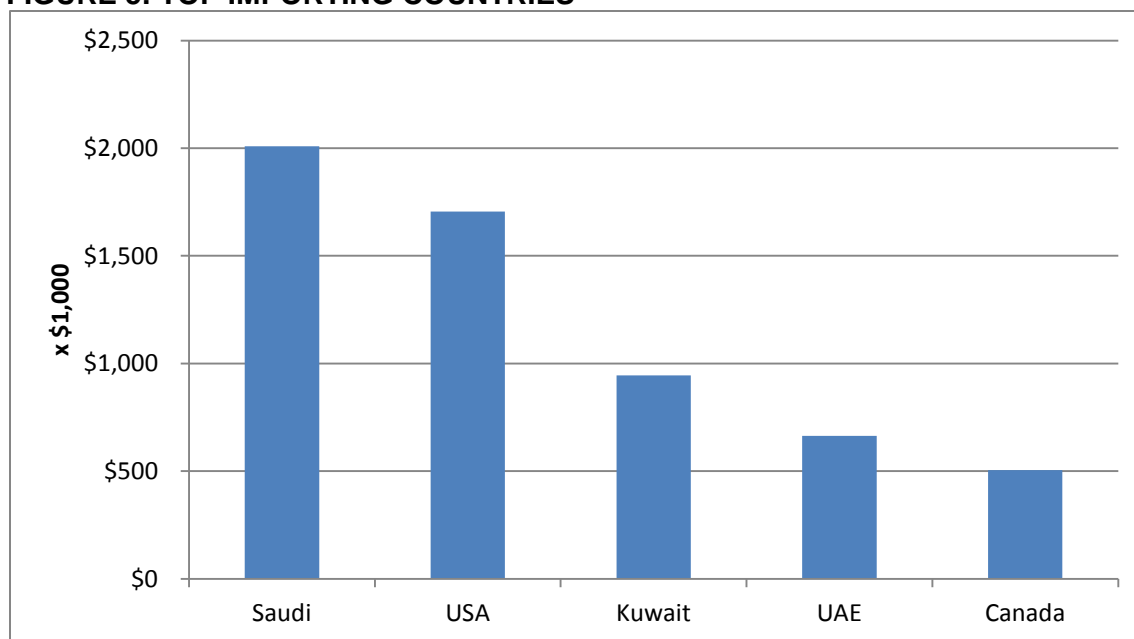
Global trade in jams totaled \$2.28 billion in 2011, with an increase of 17 percent relative to 2010. In 2011, GCC countries that represent a strong target market for Lebanese jams, imported \$72 million worth of jam. Iraq, another growing market imported \$6.9 million in 2011, a 37 percent increase compared to 2010. Lebanese jam exports have been steadily increasing since 2009, with further growth potential available. Approximately 46 percent of jams are exported; mainly to GCC countries and ethnic markets in the U.S. and Australia. The top five importing countries in 2011 were KSA (28 percent), U.S. (19 percent), Kuwait (12 percent), UAE (7 percent), and Canada (5 percent). Since 2009 the jam export market for Lebanese jams has been growing steadily in volume and in value and is shared between the GCC market and North America. A large quantity of jams exported to the GCC and mainly KSA are lower quality apple based jams produced by some of the Lebanese factories in the Bekaa.

FIGURE 4: JAMS EXPORTS VS. IMPORTS



Data Source: Lebanese Customs

FIGURE 5: TOP IMPORTING COUNTRIES



Data Source: Lebanese Customs

1.5 OPPORTUNITIES AND CONSTRAINTS

Because of its climatic conditions, soil, and relative availability of water, Lebanon is one of the few countries in the region that can grow a variety of fruits suitable for jam production. As a result, Lebanese processors can produce all the major fruit jam varieties available in international markets except for tropical fruits such as pineapple and kiwi. Moreover, producing jam from fresh fruit (not from puree)

allows for the production of premium quality jam that contain pieces or chunks of fruit that in some markets are referred to as “preserves”. This helps distinguish Lebanese jams from other regional jams that are typically made of imported fruit purees (such as Halawani of Saudi Arabia and Vitrak of Egypt). In view of the fact that there is a global trend to reduce industrial sugar in food and a focus on natural sugar sources other than sucrose, Lebanese jam processors can easily adapt to this trend by producing low sugar preserves and fruit spreads, or even utilize Lebanon’s large potential of fruit sugar source such as grapes to formulate low sugar jams. This strategy will add value to the jam, reduce Lebanon’s imports of raw sugar, and develop a new outlet for grape surpluses.

Thus, the key opportunities for Lebanese jams are to increase exports in the region for the following product types:

- Low calorie, low sugar where sugar is replaced by natural sweeteners such as grape juice.
- High content fruit pieces- also referred to as “preserves”.
- Relatively small jars- 250 g and 340 g as opposed to the more common 370 g, 450 g, and 1,000 g jars currently produced by most Lebanese processors.
- Gift sets where one elegant package contains multiple flavors of preserves in small jars (40 g to 50 g each). These packages could also contain jars of high end honey, carob molasses, or grape molasses.

The following constraints apply to all processors of jams:

- Even though in regional markets Lebanese brands have a superior image to other regional brands, they do suffer from an inferior brand image relative to well established international brands such as Bonne Maman, Hero, and Smucker’s in both local and regional markets.
- A lack of understanding of high quality market requirements, weak market links, and no marketing strategies outside of Lebanon.
- High costs in large part due to inefficient processing and poor supply chain management.
- High listing fees in the GCC.
- Quality shortcomings and inconsistent product standards.
- A lack of international food safety certification, including the ability to demonstrate respect of minimum pesticide residue limits.
- Inadequate supplies of raw fruit from both a quantity and quality standpoint, including both filler fruit used to provide sweetness and thickening (mainly apples), and the other major types of fruit used in jams in Lebanon.

A number of specific constraints affect small jam processors and cooperatives. These include:

- Lack of financial resources and revenue streams to justify upgrading their facilities and operations to meet the requirements of the international food safety standards.
- Turnover levels too small to gain the interest of medium to large retailers.
- Higher costs than larger processors and imports due to economy of scale and lack of equipment and systems that could reduce unit costs.

2. PICKLED VEGETABLES

2.1 PRODUCT DEFINITION

The pickle industry is an important industry in Lebanon with a total production value estimated at \$27 million with exports representing 63% of total production. According to Lebanese customs data, exports increased from \$15.5 million in 2009 to \$17.3 million in 2012. The total local market is estimated at \$10 million with over 95% locally produced.

Pickled vegetables are defined as:

1. Prepared from sound, clean and edible vegetables, with or without seeds, spices, aromatic herbs and/or condiments which are then;
2. Processed or treated to produce an acid or acidified product that is preserved through natural fermentation or with the resulting acidulates. Depending on the type of pickle, appropriate ingredients are added in order to ensure preservation and quality of the product;
3. Packed in an appropriate manner, being hermetically sealed in a container, so as to ensure the quality and safety as well as to prevent spoilage; and/or
4. Packed with a suitable liquid packing medium (e.g., oil, brine or acidic media such as vinegar) with ingredients appropriate to the type and variety of pickled product, to ensure an equilibrium pH of less than 4.6.

In the case of cucumbers, gherkins, or wild cucumbers there is a type that have been cured in salt brine or in another suitable curing solution with or without natural or controlled fermentation. Another type of processing is the fresh pack prepared from fresh, uncured and unfermented cucumbers. Product can be packed whole or sliced.

The main pickled items produced in Lebanon are cucumbers (including wild cucumbers and gherkins), carrots, cauliflower, sweet and hot pepper, olives, eggplant, and turnips. For cured products, processing involves fermentation in drums which can then be stored in drums and repacked. Fresh-packed pickles are simply packed in a salt and vinegar solution. Fresh packed product commands a price premium relative to the cured product. Cucumbers are the main product sold in fresh-packed salt and vinegar solutions.

The commercial packing of pickles is done either in glass jars of various sizes (0.6 liters, one liter, 1.6 liters, 2.3 liters and three liters) as well as catering size plastic pails of five liters and 20 liters. One of the pickle processors, Mechaalany, has installed new packaging equipment that can process pickles in trays and plastic bags that target food service industry customers.

The output of pickled vegetables in Lebanon is estimated at over 25,000 tons with 60 percent of total production being exported. Lebanon has a comparative advantage in this sector due to the long production season, the high quality of vegetables that are suitable for pickling, and the regional reputation of Lebanese Cuisine. Consequently, pickled vegetables are a promising sector. However some work must be done to increase its added value by focusing more on the freshly packed product instead of drum packed that is usually sold at a very low mark-up. Also, more attention should be paid on improving agricultural practices, especially when applying pesticides.

The sector becomes even more promising if we include pickled olives (green and black), stuffed olives, and stuffed eggplant in oil (Makdous). These items are growing on a yearly basis and are considered to be high value added products.

2.2 ACTORS

The main actors in the pickled vegetable value chain are noted below:

Damans/Aggregators Their role is to buy from farmers and supply processors; and in some cases they sell to the wholesale market. They facilitate access to industries, especially for those who are distant from the sources of raw material.

Wholesalers: Wholesalers in the main wholesale markets are the focal point for the delivery and sales of highly perishable vegetables to processors. Most farmers bring their goods to the market to sell to these wholesalers, while a small minority of wholesalers is specialized industry suppliers who will seek specifically to buy product from farmers that are acceptable for pickled vegetable processors' specifications.

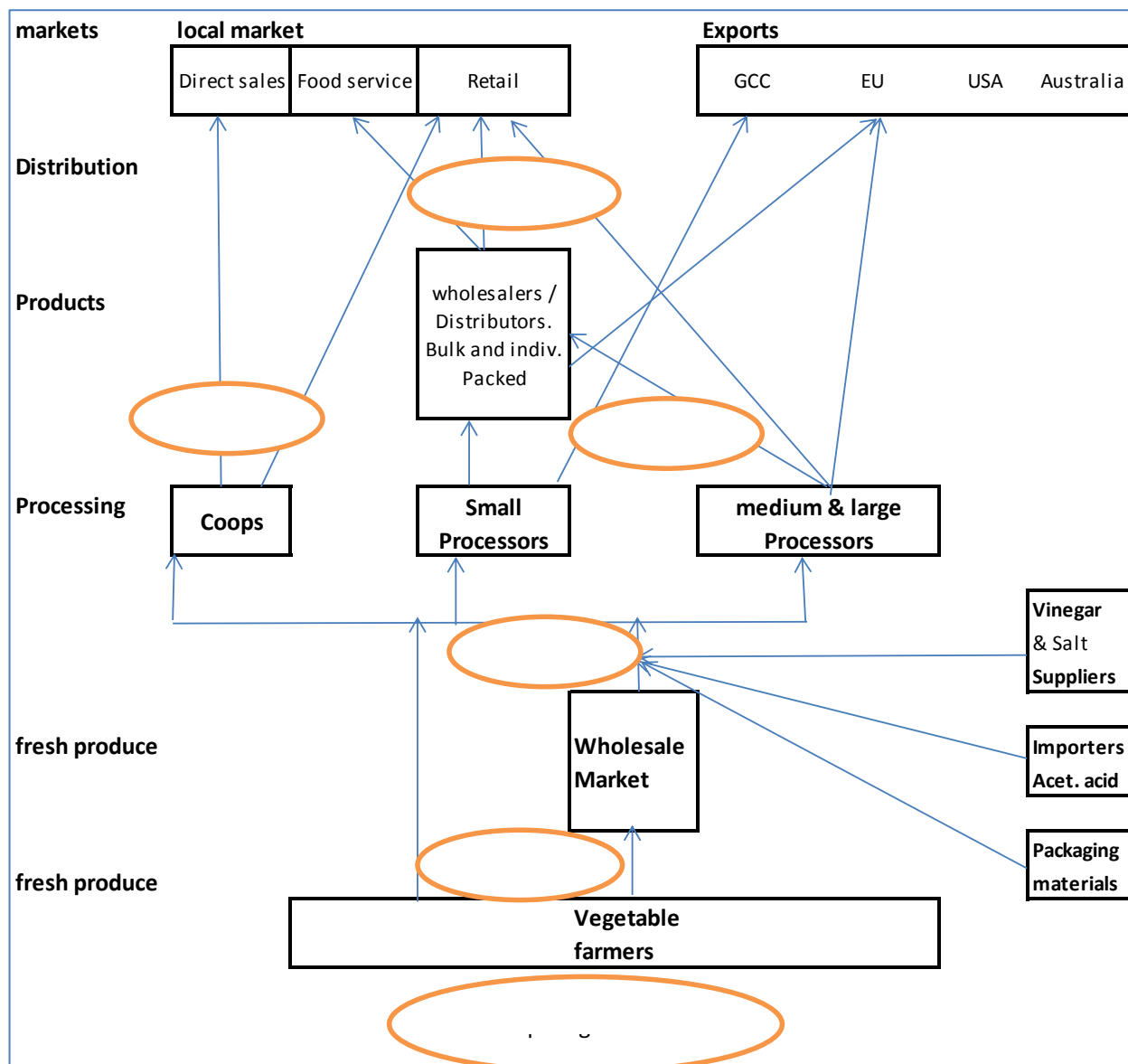
Small pickle packers These are family run businesses in rural areas where the vegetables are harvested. There are between 50 and 100 processors. They produce cured pickles and mostly sell them in bulk hotel, restaurant, and catering (HoReCa) businesses. These companies use mainly unpaid family labor working during the season to ferment and pack pickles to sell them in pails throughout the year.

Medium and large commercial packers there are over 10 medium to large companies that process pickles. Some are focused on bulk sales. Others sell pickles in glass jars to the retail market.

Rural cooperatives: There are around 120 small rural cooperatives (the majority are run by women) producing small quantities of pickled vegetable products.

A schematic map of the product flows in the pickled vegetable value chain appears below in Figure 4.

FIGURE 6: PICKLED VEGETABLE VALUE CHAIN MAP



2.3 PRODUCTION PROCESS AND TECHNOLOGY:

The pickling industry is seasonal with production based on the availability of products according to the agricultural calendar. Pickling processors absorb relatively large quantities of cucumbers, turnips, carrots, cauliflower, and eggplant. The technology used does not differ much between large-scale and smaller processors. In each case, whether the product is cured in drums or fresh-packed in retail containers, there are high manual labor requirements. The main difference is that at the industrial level, quantities are much bigger, the pasteurization process is more mechanized, and the range of products differs. Specifically, medium and large processors focus mainly on cucumbers, mixed pickles, and turnips. Cooperatives and small packers tend to focus more on stuffed eggplant, stuffed olives, and other items that require more intensive labor inputs from skilled workers.

The pickling industry has evolved quickly in the last decade and has improved in quality, food safety, and branding. New factories such as Gardenia were established. These players have a clear focus on compliance with international food safety standards. Some of the old factories have also improved their operations and facilities to meet these standards, as well as upper end market requirements.

Pickle processors in Lebanon produce using both cured and fresh pack processes. The latter method has a slower processing time which limits the quantity that one unit can produce during the season. In contrast cured pickles have a higher capacity of production due to shorter processing times and they can be stored and re-packed at a later stage. The fresh pack product has the reputation for having better crunch-ability and superior taste. However, this depends on the type of vinegar utilized in the fresh pack as well as on the skills of the workers doing the processing. A large factory can produce up to a maximum of 1,000 cases per day of fresh pack (about 18 tons of pickled vegetables) while it can pack in drums for fermentation about 30 tons. Curing of vegetables in small plastic drums becomes inefficient, difficult to monitor, and cumbersome when large quantities are involved. The conditions of the drums, the lack of hygiene, and the quality of the salt and human error result in defects such as having incorrect flavors and softness in consistency. This inadequate quality can be easily noticed in the market especially in the food service sector. The proper knowledge of curing pickles requires skill and know-how that is still not available among all Lebanese processors.

The initial investment for pickles can be very small, ranging from \$5,000 to \$500,000 depending on the capacity and products. The reason for this is the fact that pickles can be a highly labor intensive process. Any increase in investment should be linked to an increase in required capacity and eventually tied to a reduction in unit costs.

2.4 MARKETS

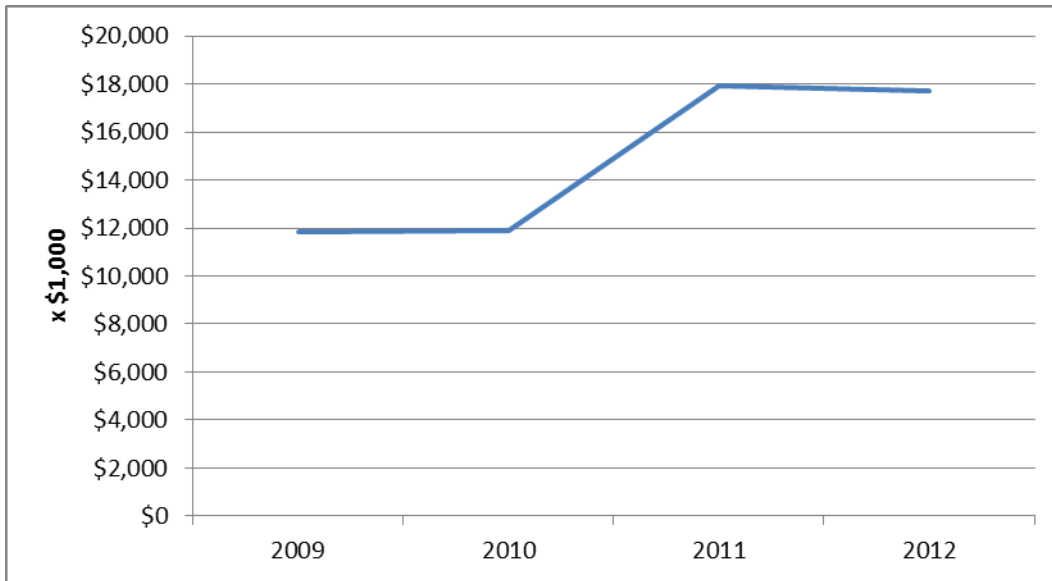
Domestic Market

The local market is highly dominated by the fermented cured pickles mainly sold in large quantities, in bulk packs to the food service sector and to bulk sales in supermarkets. The jar-packed product, which can either be fresh packed or cured, is produced in lower quantities and is usually sold on shelves inside supermarkets or grocery stores. Every year an estimated quantity of 11,512 tons are produced and sold locally (value at approximately \$10 million). The biggest item is cucumbers at 33 percent of total sales, followed by wild cucumbers at 12 percent, and turnips at 11 percent.

Export Market

Lebanese exports of pickles saw a 49 percent increase from 2009 to 2012 with the total export volume in 2012 of 17,336 tons with a value of \$17.7 million. Cucumbers accounted for 22% of exported pickles while mixed pickles accounted for 78 percent of exports.

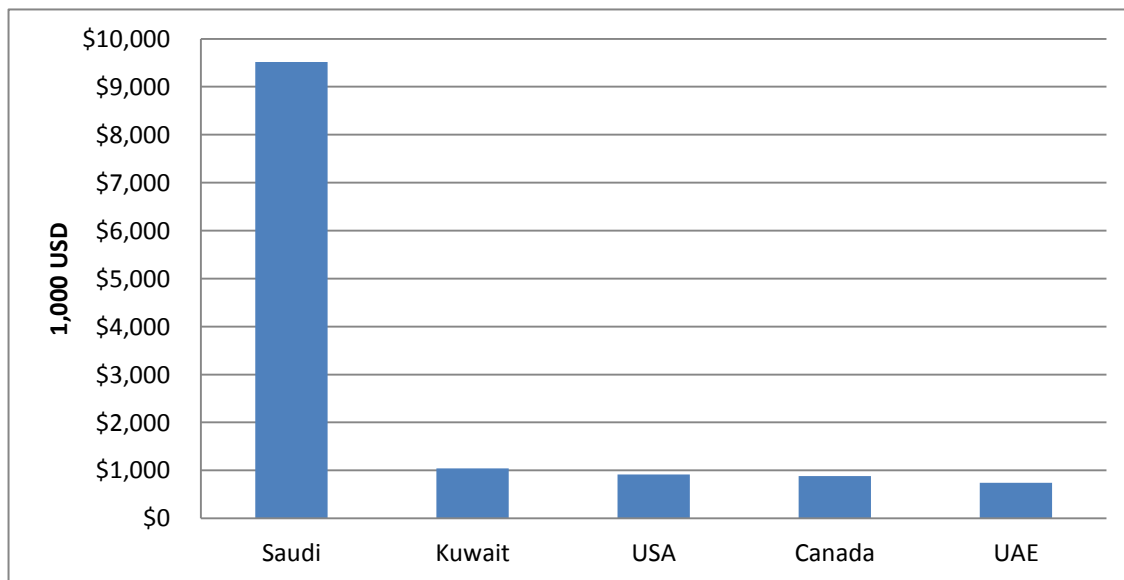
FIGURE 7: - PICKLE EXPORTS



Data Source: Lebanese Customs

The largest importing country by far, is KSA which accounted for 56% of total Lebanese exports of pickles, followed by Kuwait, U.S., Canada, and UAE.

FIGURE 8: TOP IMPORTING COUNTRIES OF LEBANESE PICKLES IN 2012



Data Source: Lebanese Customs

Lebanese pickles are mainly sold to local distributors and chains in the GCC countries while it is mainly handled by ethnic product distributors in the West.

2.5 OPPORTUNITIES AND CONSTRAINTS

The major opportunities for pickles are as follows:

1. Increase quality and competitiveness of cured pickles through the improvement of workers' skills;
2. Increase sales to export markets by increasing production of competitive high-quality fresh pack pickles in individual packs.

Capitalizing on these two opportunities will require strong collaboration between farmers and processors with the elaboration of outsourcing arrangements for fermentation and raw product production. It will also require closer market communications with clients in the GCC and western countries.

Constraints that are specific to pickles include:

The unavailability of consistent quality vegetables This is especially true for cucumbers. The reasons for this lack of supply are: poor production practices among farmers; a lack of farmer specialization in vegetables for pickling; and poor post-harvest handling.

Poor training of workers and managers Pickling facilities in Lebanon do not follow common industry leading practices. Raw material is not properly treated and many processors use plastic drums that are unhygienic. Supervision of fermentation is also often inadequate. These practices are easy to change through training.

Lack of understanding of destination market channels Lebanese pickle processors have a limited understanding of how destination markets are structured and what the major trends are. In particular, most exports to the GCC countries are of low-quality underpriced cured pickles despite the fact that market prospects for high quality pickles are quite good.

4. DAIRY PRODUCTS - WHITE CHEESES, LABNEH, AND AYRAN

2.1 PRODUCT DEFINITION

The dairy industry included about 15 percent of the total food and beverage industries in 2007 (110 establishments). The Lebanese dairy industry has the following characteristics:

- Fresh milk production in Lebanon is relatively costly as farms are mostly small entities and the cost of fodder is high. Powdered milk is still predominantly used in households and in industry.
- Enforcement of regulatory rules on raw milk and on milk products is arbitrary. The local market is highly open to competition from imported processed items, especially cheese.
- Local brand UHT milk is now imported after the only producer, Liban Lait's factory was destroyed during the 2006 Israeli war. Imports of milk from Arab countries benefit from favorable duty treatment. The major exporting countries are Egypt and KSA. Low shelf life pasteurized milk constitutes a small but growing segment.
- Ayran, plain yogurt, and Labneh are locally produced in significant quantities.
- Milk processing is a seven day per week business. Most companies work six days a week and keep Sunday for storage. The bulk of the dairy processing is done by about eight factories. Raw milk is mainly cow's milk outsourced from the Akkar Region, the Bekaa Region, and from farmers in Mount Lebanon. All the companies utilize milk powder, though the extent of their reliance varies from

company to company. In some cases goat milk and sheep milk are utilized for special products, yet the quantities are still small.

- In order to assure a minimum quantity of high quality raw milk, many processors are vertically integrating their manufacturing processes. Factories have established or purchased their own farms. The largest one with about 1,800 animals. The remaining independent farmers are located around the factories, especially in Mount Lebanon. Most of these factories comply with at least the minimum hygienic requirements for the production of dairy products.

For practical requirements, and in order to cover most of the economic parameters related to the sector, we have focused on three dairy products: labneh, white cheeses, and Ayrans. The main reasons are:

- Labneh and white cheeses constitute higher added value products compared to other locally produced dairy products.
- Labneh and white cheese are both high consumption items, locally and in Arab countries.
- Ayrans are growing in popularity and have the largest potential for export to regional countries.
- All products (except some white cheeses like halloumi and akawi) can be produced from fresh milk and/or powdered milk, which makes raw material more available.
- All items require skilled labor.

Yellow ripened cheeses were not selected, despite their excellent potential, because of their high fresh milk requirements. This poses many difficulties due to the general lack of fresh milk in Lebanon.

Specific product specifications are given below:

Ayrans drinking yoghurt: Liquid cultured milk made from 50 to 60 percent diluted milk and lactic culture. Salt and some stabilizers are added. Ayrans have almost fully replaced full strength yogurt drinks on the commercial market. Ayrans are mainly consumed as refreshment rather than a dairy product and are in direct competition with other non-alcoholic drinks. The largest sales at present are in the food service sector rather than in the retail sector. The largest brands are Taanayel, Liban Lait, and Khoury; however there are many small processors that sell in areas that are in close proximity to their factories. Most of these small factories do not meet international food safety standards.

Labneh: Produced from yoghurt (coagulated milk undergoing lactic acid fermentation) where salt is added and the product is concentrated to a minimum 23 percent solid content by removing water. Labneh is simply strained yoghurt and, therefore, all yogurt processors have labneh available. Labneh exists in full fat and low fat and is generally a short shelf life product reaching a maximum of 30 days if the cold chain is well maintained.

White cheeses: Include the traditional Lebanese cheeses such as Akawi, Halloumi, Double Crème, baladi, and shanklish. White cheeses are mostly locally produced, though a large quantity is imported from Syria. They are coagulated and fermented milk products using an enzymic fermentation sometimes supplemented with lactic fermentation. White cheeses should be produced

from raw fresh milk in order to achieve desirable qualities; however powdered milk can be added to compensate for shortage of raw milk without greatly affecting quality.

3.2 ACTORS

The main actors in the value chain are listed below.

Dairy farmers these vary from small individual farmers (two to five cows) to medium sized entities (150 cows) to larger entities (1,500 cows). Most of the farmers buy their fodder from special suppliers, except for one or two who are vertically integrated and grow their own crops for fodder production. The productive capacity of the dairy farms varies between 150 liters to 25,000 liters per day. The majority though are on the lower side of the scale. Few farms have refrigerated storage facilities which make it imperative that they deliver their milk the same day they extract it from the cows.

Small processors There are over 300 small dairy processors in Lebanon. Most consist only of one foreman with a few workers who receive raw milk from dairy farmers and produce a standard range of dairy products such as Labneh, Laban, white cheeses, and shanklish. A lot of these small processors possess their own sales outlets adjacent to their processing facilities. The hygienic condition in most of these small processors is questionable. They are usually able to sell their products on a daily basis in small volumes. Thus, given this quick turnover and low volume, the fact that they may be producing products that do not have a long shelf life because of questionable hygiene is not a major problem.

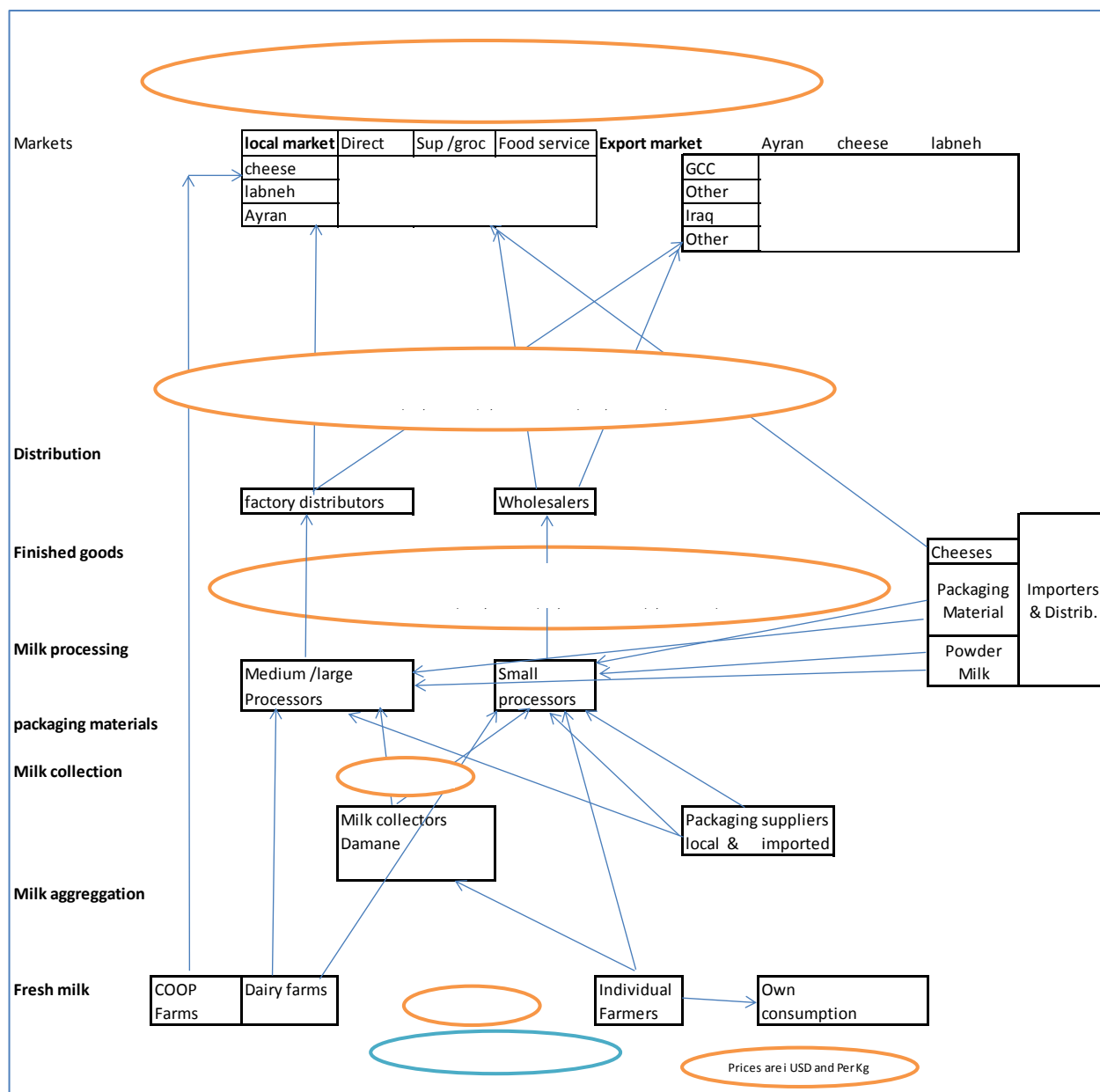
Cooperatives Few agricultural cooperatives produce dairy products. There are four or five cooperatives in the Bekaa and in the north and a similar number in the south of Lebanon.

Medium and large processors these are companies that buy fresh milk from farmers and powdered milk from local importers, treat it, and produce pasteurized milk products. Powdered milk is utilized to fill the gap in fresh milk deliveries as well as to standardize fresh milk and, in many cases, replace fresh milk as less expensive raw material. Medium and large processors can vary between 25 and 100 workers with capacities that run from 2,000 liters to 30,000 liters of milk per day.

Factory distributors/exporters These are distribution agents who work with most of the medium and large processors. They own refrigerated vans and deliver to supermarkets and to groceries. Their role is to deliver fresh products on a daily basis, remove old product from the market, and assure that their product is always available on shelves. Some of these distributors act as exporters. Many are also owned by larger dairy processors.

Wholesalers These are intermediary sellers and distributors of many items including dairy products. Their main role is to access small shops and groceries. They are not very active in the dairy business because it requires a large investment and carries high risk due to the limited shelf life of most products.

FIGURE 9: DAIRY VALUE CHAIN MAP



3.3 PRODUCTION AND PROCESSING TECHNOLOGY

Dairy products are produced in Lebanon using raw milk and recombined milk using imported powdered milk. Similar to all regional countries, the presence of powdered milk is important because it facilitates constant availability even when raw milk may not be available. The production of raw milk at the farm level is still controversial as it is expensive and non-hygienic. While cheeses are produced mainly from fresh milk, ayran and labneh are produced from a mixture of fresh milk and powdered milk or in some cases completely from powdered milk. The processing steps for labneh and ayran and white cheeses are detailed below.

Labneh and Ayran

These products are both made from yoghurt as the base ingredient. Yoghurt is produced by the lactic culture fermentation and coagulation of milk. The inoculate is usually a mixture of bacillus bulgaricus and streptococcus thermophiles. The main production steps are as follows:

- Raw milk is pasteurized for 5 minutes at 98⁰ C.
- The milk is then cooled at 45⁰ C and inoculated with a lactic culture and incubated for several hours until the milk becomes more acidic and coagulates.
- The coagulate is then immediately cooled down to 4⁰ C in order to solidify the texture, essentially forming yoghurt
- In the set yogurt, the inoculated milk is transferred to small recipients and incubated for several hours, then refrigerated.
- To make Ayran, yoghurt is diluted with water and salt is then added.

Labneh is produced from stirred yoghurt which has been strained in a white cloth and concentrated 3.5 times. The cloth straining takes place in a cold room and for at least eight to 10 hours. Labneh processing is mostly done on an industrial scale, yet is also replicated in home and artisanal production units. Salt is added and the product is well mixed until it becomes smooth and creamy.

White Cheeses

Processing steps for white cheeses are as follows:

- Raw milk is received cold, tested for quality, and heated mildly up to maximum 67⁰ C.
- The milk then is stored in a cheese vat and exposed to an enzymatic fermentation by adding the enzyme rennet and calcium and kept at 37⁰ C.
- The coagulate is then filtered and the serum obtained, called whey, is utilized in the production of double crème.
- The filtered coagulate is pressed, molded, or even boiled depending on the type of cheese to be produced.
- The cheese is later either immediately wrapped in plastic or stored in a brine solution in special tins at cold temperature for later repacking or sales as a wholesale item.

In general, the gross margins on milk products are low (15 to 30 percent depending on the products) after subtracting the cost of raw milk, cost of production, cost of distribution, and cold storage. Apart from the need to optimize milk production costs at the farm level costs must be saved during distribution and throughout the cold chain.

3.4 MARKETS

Domestic Market

The estimated consumption of some categories of dairy products in Lebanon in 2008 and 2009 according to a study by IMES/Consulting in Dubai is as follows:

TABLE 6: ESTIMATED CONSUMPTION OF DAIRY PRODUCTS IN LEBANON 2008-2009

Item	Approx. Volume in Metric tons(2008)	Retail Value(2008) (US\$ Millions)	Forecasts 2013 (US\$ Millions)
Liquid milk	8,500	14	19
Ayran	3,900	5	22
Yogurt	13,500	19	17
Labneh	6,200 (21,000 LME*)	24	25
Cream	2,000 (13,000LME)	9	15
Dairy desserts	50	0.3	300
Butter	4500(95000LME)	40	114
Retail Milk powder	9600(77000LME)	68	87

Source: Imes consulting/Dubai.

*LME=Liquid Milk Equivalent

Annual growth in volume of about 2.5 to 3.5 percent per annum is projected for all the different items mentioned starting from about 550,000 tons of milk consumed. The FAO estimated per capita annual consumption of milk to be about 106 liters (2009), those figures include imported as well as locally produced milk, while consumption of fresh milk according to the IMES study is estimated at 18 liters per capita. The UHT milk market which was mainly produced in Lebanon by Liban Lait in carton packs was discontinued and replaced by a subcontracting agreement in France, and subsequently from Egypt, which benefits from the Arab Trade agreement. The major dairy products marketed domestically are the following:

TABLE 7: MAJOR DOMESTIC DAIRY PRODUCTS

	Type of package	Sizes	Top 5 Brands	Source
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Product				
Liquid milk UHT	Aseptic carton	1 liter, 150ML, 200M, 250ML	Liban lait, Dairy Day, Taanayel, UNO	Imported Egypt.
Liquid milk (Pasteurized) Short	PET Bottle	1 liter, 250ml	Liban Lait, DairyDay, Solight, Taanayel, Khoury	local
Ayran (short shelf life)	Pet bottle	250ml	Dairy Day, Taanayel,	Local
Plain Yoghurt	Plastic pots, Pail	450g, 500g, 1kg, 2kg	Liban Lait, DairyDay, Taanayel, Khoury, Baroud	Local
Fruit flavored yoghurt	Plastic cups		Taanayel; Elle et Vire; Danone.	Local and imported (France).
Labneh	Thermoformed tubs, pails	400g, 500g, 1kg, 2kg, 5kg	Liban Lait, DairyDay, Taanayel, Khoury, Jdita	Local
Dairy desserts	Plastic cups		Taanayel; Danone	local
White cheeses (Halloumi, Akkawi, Double crème, light white)	Plastic vacuum wrap		Liban Lait, DairyDay, Taanayel, Khoury, Jdita,	Local; imported (Cyprus, Syria).
Butter	Alu wrap	200g, 400g		Imported-Belgium, Denmark.

Ayran: The consumption of ayran in the local market has been relatively steady the past five years. The usual pack for ayran is the 250/300ml PET bottle stored at refrigerated temperatures. Even though both Liban lait and PAMPA commercialized the sterilized versions of the product, both are now no longer participating in the market for various reasons.

Labneh: sold in retail packages, but also in five kg bulk packaging for over the counter sales and for HoReCa.

White Cheese: White cheeses are sold in the retail market as well as to bakeries and dessert shops. A large percentage of akkawi cheese is sold to bakeries and oriental dessert shops and to make cheese “Mankoushe” and it is also sold to oriental desserts shops to make “cheese kenafe,” a Lebanese dessert. Most of the white cheeses are made from cow’s milk except for a small quantity used to produce goat cheese or to add with halloumi.

Export Market

Major export markets for Lebanese dairy products are still closed due to SPS reasons. The Ministry of Agriculture (MoA) is not technically ready to facilitate global trade by putting Lebanon on the list of approved suppliers.

The dairy export market is still in its primitive stages due to the nature of the product and the hurdles imposed by the importing countries on animal based products. Exports to Europe, U.S., and Australia are practically nil, except for small quantities of certain specific items such as labneh preserved in oil and shanklish (traditional cheese). Exports to GCC countries, Egypt, and Iraq exist at low levels, although with promising potential for expansion considering the high level of appreciation for such products in the Gulf and the high quality of Lebanese products relative to other regional suppliers.

The main items exported are white cheese (including shanklish), ayran, labneh in fresh pack, and labneh preserved in oil. All products except labneh preserved in oil require refrigerated storage and transportation. The overall quantities exported in 2011 did not exceed 1,300 tons most of which are cheese products and ayran. The first five importing countries are Kuwait, KSA, Jordan, Iraq, and the U.S. In 2012, Iraq became the number one importing country for ayran, with imports estimated between 1,000 and 1,500 tons.

3.5 OPPORTUNITIES AND CONSTRAINTS

Dairy production in Lebanon is still dependent on the import of powdered milk. Historically the cost of milk powder was always cheaper than fresh milk as it has often been subsidized in its country of origin. In addition most of Lebanese dairy farms were destroyed during the civil war, and were not rebuilt adequately before the late nineties when investors started to take interest in developing fresh milk factories again. In 2012 alone about 22,000 tons of milk powder (both full fat and low fat) were imported from various countries in Europe; this is equivalent to about 167,000 tons of Liquid Milk Equivalent (LME) (22,000 x 7.6 liters). About 50 percent was for retail sales and the rest was utilized in industry. Raw milk production in Lebanon was estimated to be around 165,000 tons in 2011. Those figures might not be very accurate but they do indicate that Lebanon imports milk and milk products at least as much as the country's production in terms of liquid milk equivalent (LME).

Given the importance of milk powder and the unpromising prospects for increased raw milk production, opportunities in the dairy sector are the strongest for products that can be successfully made with milk powder inputs—which is the case for ayran, labneh, and white cheeses. Specific opportunities for these products are as follows:

- 1) Increase exports of the three targeted products to Syria, Iraq, and GCC markets.
- 2) Replace imports of white cheese in the domestic market.
- 3) Introduce new types of processed white cheeses that are not currently produced in Lebanon, such as feta cheese that has high local and regional demand.
- 4) Improve the efficiency of the many cooperatives and small and microenterprise processors of white cheese, labneh, and ayran.

These opportunities could be achieved through a joint effort with milk producers, dairy processors, and strong distributors in the destination markets. The support and input of the public sector is also required. All three products have a strong potential for export. Labneh in particular is experiencing some success as an export product.

Major constraints that stand in the way of the realization of these opportunities include:

A lack of good quality raw milk There is currently an insufficient, though increasing number of state-of-the art dairy farms capable of supplying consistent quality milk.

An absence of required food safety systems among processors Many dairy processors do not apply mandatory HACCP or even GMP requirements. This is particularly the case for smaller processors and cooperatives. These problems are compounded by the poor quality of raw milk

inputs as most processors work with raw milk that has a high load of microorganisms. This situation is very detrimental for the shelf life of products such as cheese and labneh.

Processors have difficulty acquiring skilled food safety educated staff at the level of supervisors and operators. There is a general lack of trained dairy processing technicians in Lebanon.

5. READY-TO-EAT MEALS

4.1 PRODUCT DEFINITION

There are several types of prepared meals produced in Lebanon, they include:

Industrialized long shelf life meals. These are usually canned or frozen although recently vacuum packed products have appeared. The main types of product being produced are: (1) canned middle eastern products (fava beans, muddammas, hummus with tahini, and babaghanouge); (2) frozen items such as “kebbe” and frozen pastries stuffed with vegetables or minced meat; and (3) vacuum packed chilled traditional Lebanese meals consisting of prepared dishes, with or without meat, sterilized under a vacuum and stored in chilled conditions. These products are microwaveable. Canned Middle Eastern products have a shelf life that can last for up to two years. Frozen kebbe and pastries can be stored up to one year with proper cold chain management. Vacuum packed traditional Lebanese meals can also be stored up to one year.

Short shelf life minimally processed meals. These types of products include fresh hummus and babaghanouge usually packed in plastic cups or trays, as well as other dips such as guacamole and fresh-cut salads or potatoes chilled and packed in plastic trays or bags. The shelf life for all these types of products is generally from 21 to 45 days with temperature maintained at 4⁰ C.

Very short shelf life dishes for quick consumption. These are produced by the food service industry and contain a diversified range of products such as traditional Lebanese hot dishes, sandwiches, and other catering-type meals. These products have the highest added value and are mainly sold in the domestic market and catering for airlines. Those items are not included in the analysis presented below.

4.2 ACTORS

Given the wide variety of products in all the different ready-to-eat meal value chain segments, we have chosen to concentrate on the babaghanouge segment as a good general example and on fresh cut salads as a minimally processed food item. The main actors in the Babaghannouge value chain are described below; the fresh cut segment follows.

Eggplant growers: These are farmers or agricultural contractors who own land or rent land and grow various vegetable products including eggplant. They provide fresh produce directly from the field, can guarantee quantities on a regular basis, and can improve quality or even variety of eggplant according to the processors needs.

Wholesale markets: These are critical focal points for all agricultural products, especially the highly perishable ones. Sometimes babaghanouge processors will buy product in wholesale markets in order to reduce their purchase prices relative to direct contracts to small farmers.

Semi-processors: These are growers or damans who are usually established near the farms and whose main role is to process agricultural products to processors' specifications. Their competitive advantage is that they buy material on site and utilize relatively cheap rural labor for processing. In the case of eggplants the processing operation involves roasting, peeling, and freezing the product.

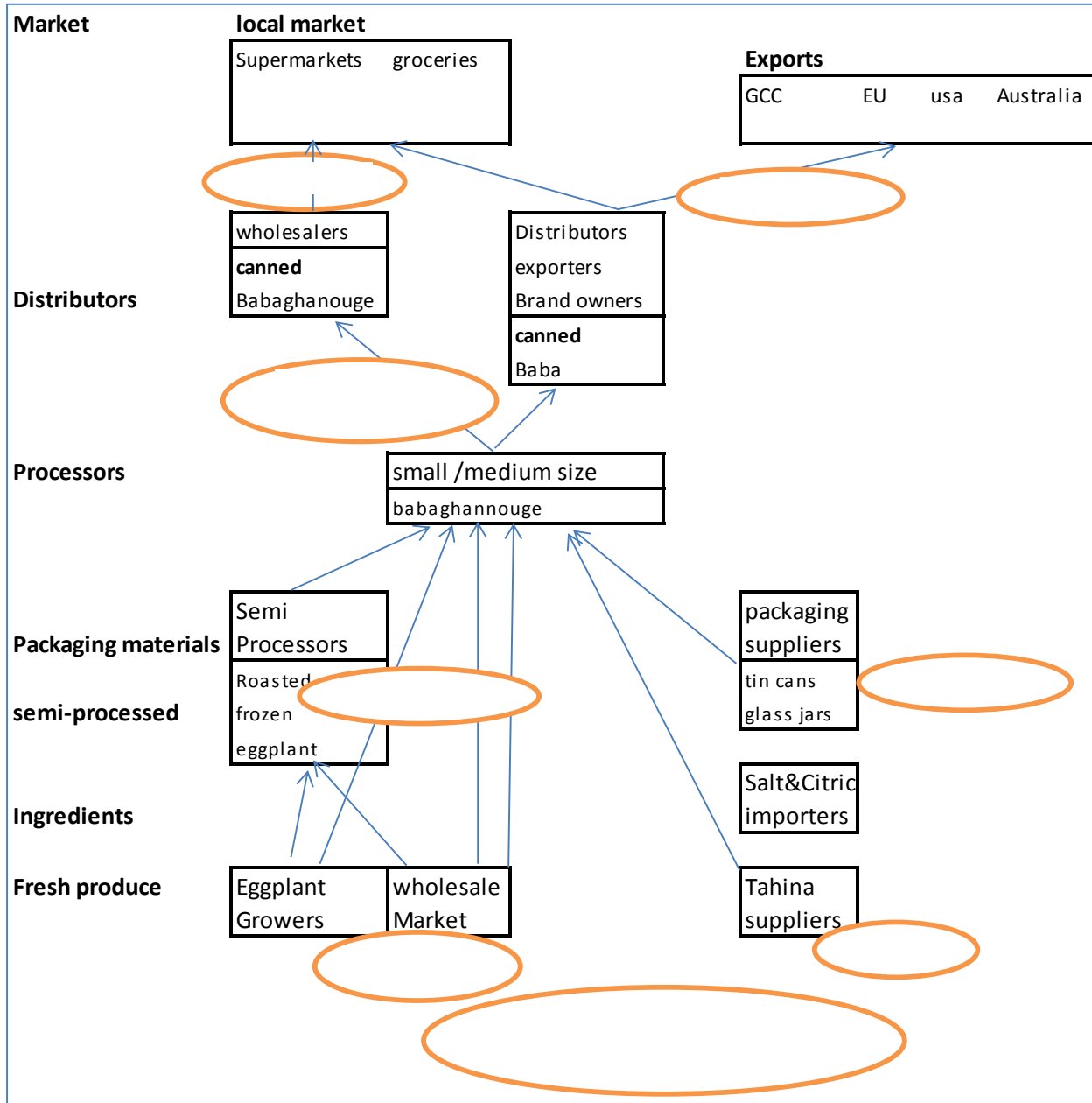
Tahina suppliers: These are local tahini production factories which are numerous in Lebanon. They sell tahini in bulk containers.

Medium and large size processors: These are canners having a medium or large capacity utilizing complete canning facilities to prepare and can babaghanouge.

Distributors /brand owners/exporters: These include brand owners having their own distribution system. They sell both locally and abroad.

Distributors/wholesalers: This category of actors includes large product distributors/importers that often are organized in companies that belong to processors or are subcontracted by them. They also include independent distribution and logistics companies that access a large number of retail outlets in Lebanon.

FIGURE 10: BABAGHANOUGE VALUE CHAIN MAP



The main actors in the Fresh cut chain are as follows:

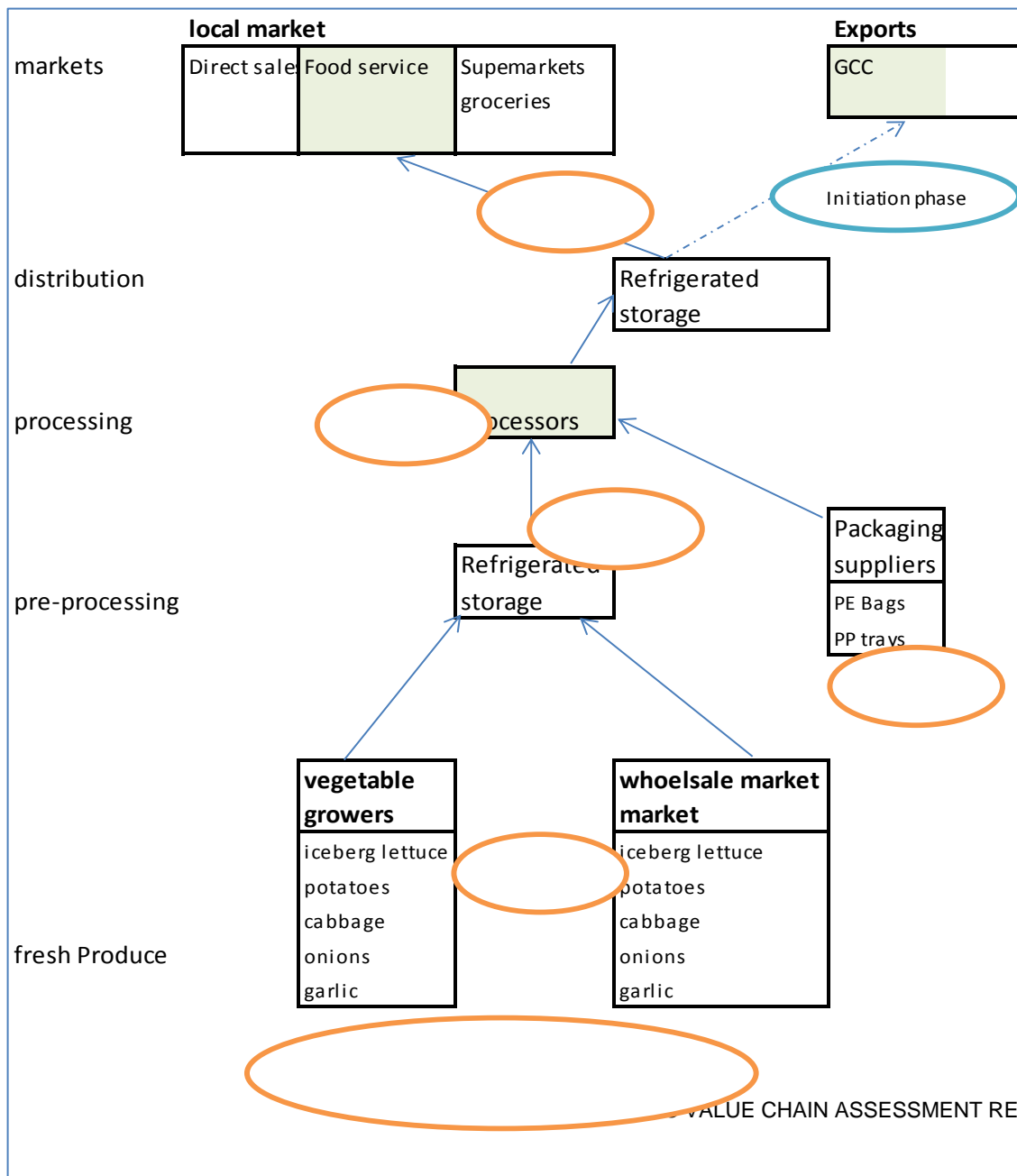
Fresh vegetable growers: These are farmers or agricultural contractors who own land or rent land and grow various vegetable products including lettuce, onions, potatoes, cabbage. They provide fresh produce directly from the field, and can guarantee quantities on a regular basis. They should be able to guarantee quality, but only in the specific crop they specialize in.

Wholesale markets or whole sale market agents: These are critical focal points for all agricultural products, especially the highly perishable ones. They remain the favorite suppliers to fresh cut processors due the fact that they are able to deliver various crops at the same time and in small and medium quantities.

Small and medium processors: These are actors that transform the raw material into fresh cut salads; pack them and assure their continuous storage in cold conditions. They either buy product day by day or store it for a few days only, in view of the constraints of their business.

Processors /Distributors: These are processors having their own refrigerated vans, which carry the goods on a daily basis directly from the factory stores to the cold stores of the foods service chain.

FIGURE 11: FRESH CUT SALADS VALUE CHAIN MAP



4.3 PRODUCTION AND PROCESSING TECHNOLOGY

Industrialized long shelf life products:

Canned ready to eat meals require relatively mechanized and automated systems in order to meet both safety and cost requirements. Therefore such products are produced mostly by medium and large sized canning facilities. Some other types of long-shelf life ready to eat meals require more intensive labor inputs. These types of products are usually produced in small factories and in rural agricultural coops for women. These products include stuffed grape leaves, zucchini or makdous.

The raw material ingredients are either procured locally or, in the case of meals produced with dried legumes (hummus and fava beans), are imported. The process for babaghanouge is described in more detail below.

Babaghanouge is made up of the following ingredients: Raw eggplant or frozen and roasted eggplant, tahini, salt, lemon juice, and citric acid. The production steps include:

- Roasting and peeling of the eggplants;
- Mixing eggplants with tahini, salt, and lemon according to specific formulations;
- Filling the mix into cans or jars;
- Closing the container hermetically;
- Sterilization of the sealed cans;
- Labeling and boxing of the sterile cans; and
- Storage at ambient temperature.

Short shelf life products with minimal processing

Production lines for minimally processed food products are mainly large kitchens. However, they should be designed as sophisticated units with highly efficient air filtration, temperature controls, as well as cold storage to maximize shelf life. Short shelf life processing is a relatively new technology in Lebanon. The associated high cost of production is compensated by a higher added value on the shelf. The source of the raw materials is usually both local and imported when it comes to dips such as hummus tahini, while it can be completely sourced from local materials for such products as fresh cut salads.

In the case of fresh cut salads or vegetables, the processing equipment can vary from semi-automatic equipment to higher capacity automated lines. In Lebanon there are one or two automated lines such as the one at Fresco in the north. The process consists of:

- Sorting of the fresh vegetables;
- Thorough washing;
- Cutting of the vegetables into pieces or slices depending on the final product;
- Dipping in cold chlorinated water to reduce temperature and microbial load;

- Removal of the excess surface water by centrifugal force;
- Filling of the dewatered vegetables in plastic bags or trays, while removing a large part of the air; and
- Storing the packed fresh vegetables in a cold store at a maximum temperature of 4^o C.

The technology of production is highly dependent on the factory hygiene, conditioned climate, and the cold chain.

4.4 MARKETS

Domestic Market

Industrial long shelf life ready to eat meals

The domestic market is quite developed for canned food items such as the Middle Eastern food specialties. Canned hummus with tahini, fava beans muddammas, and babaghanouge are among the leading products. The potential for growth of such items is in the development of new products such as stuffed vine leaves and soups. The competition in this part of the market is coming from minimally processed or over the counter items that have a lower shelf life and are more expensive, but have a fresher taste. Thus the potential to expand existing canned Middle Eastern specialties is fairly limited.

On the other hand frozen food products such as pastries and kebbe have rapidly expanding market potential with little competition.. However, it has a limited product array and is missing key leading products such as traditional Lebanese pastries. This segment has important growth potential as Lebanon is an important poultry producer. The local brands do not have much competition from imports as the range of products is related to Lebanese tastes, though there is a need to improve the presentation and marketing of such products.

Industrial short shelf life products

Lebanon has a strong HoReCa industry which is the main buyer of these types of products. Local caterers prize these products since they need the flexibility of offering and distributing any type of meal on short notice and in a relatively short time. The market trends show that there is room for increased sales of products such as hummus tahini or babaghanouge, garlic paste, and fresh cut salads.. This of course is only a very small share of the fresh market for hummus tahini if we consider foods service and over the counter sales.

Export Market

Exports of canned ready to eat meals started in the 1930s. These exporters were first to introduce hummus in the U.S., Canadian, and other markets. However, even though Lebanese producers are pioneers in exporting Middle Eastern canned products they have failed to keep up with new developments in the overseas markets for these products. The U.S. market today has a fresh hummus market estimated at

\$300 million which has practically eradicated canned hummus. The same situation is taking place in Europe, yet at a slower pace. Foul Muddammas is still a highly prized item in the GCC markets which are the largest consumers, but these markets have been dominated by local factories such as California Gardens, a UAE owned company and others. Their production costs are considerably lower than that of Lebanese processors.

Nonetheless, Lebanese ready to eat meal exports have a high potential for growth if processors are able to deliver the right products. Their chance for success is promising since Lebanese cuisine is highly appreciated regionally and recognized globally due to Lebanon's status as a tourism destination and opening of gourmet quality Lebanese restaurants in various international cities such as Paris, London, New York, Sydney, Dusseldorf, Washington, and Chicago as well as in Gulf cities such as Dubai, Jeddah, and Riyadh.

In addition to ethnic food distributors, Lebanese restaurants in foreign countries constitute a significant venue for sales of Lebanese products. Foreign consumers appreciate Lebanese products, though are not able to simulate them at home because Lebanese industrial products, initially intended for the diaspora, do not always constitute a final ready to eat product similar to a restaurant without further processing at home. Another important point which was clearly witnessed in the U.S. markets is related to the importance of customizing products to suit the taste of local consumers, other than the diaspora. Two big successes, hummus tahini and labneh (or Greek yoghurt), have succeeded in the U.S. market because they were modified to suit mainstream consumers' tastes.

Furthermore the introduction of Lebanese stuffed pastries and kebbe along with other Lebanese food items which are gaining ground in Lebanon should be envisaged as they are already starting to be marketed abroad, especially in the GCC markets. The market size is still small; however it has large growth potential. There is an issue in terms of meat in meals since they are subject to the tougher regulations on animal origin products, even outside of the U.S. and EU. Fresh cut salads are still a purely local market product, but with good development and marketing skills, it can easily penetrate the GCC markets and possibly other neighboring markets.

4.5 OPPORTUNITIES AND CONSTRAINTS

Lebanese ready to eat meals have the potential to catalyze the future development and upgrading of processed food exports. This is due to several factors: chief among these is the fact that they have a higher added value than pure commodity products which means that Lebanon as a high-cost raw product producer has less of a handicap. Lebanese food products have started to be well known in world markets, at least in major international cities due to the presence of Lebanese restaurants, and the diaspora. Lebanon can provide a diversity of such products, some of which are complicated to produce and require intensive labor.

The opportunities can be summarized as follows:

Widen the range of ready to eat products being sold into Iraq and the GCC countries. These markets are growing rapidly and Lebanon is well placed to serve them if ready to eat processing companies would reorient their focus away from the lower value canned Middle Eastern products to other higher value

products such as shorter shelf life items and frozen pastries where demand is growing at a much faster rate.

Expand ready to eat exports to the EU, U.S., and Australia with a similar widening of product offerings away from traditional canned products and through the upgrading of Lebanese processors in terms of quality and food safety.

The constraints to realizing these opportunities are:

- 1) The absence of a common Lebanese export market strategy directed towards the different markets whether the traditional Arab markets or the western markets.
- 2) Significant lack of information on the internal dynamics of the various markets, and a frequent absence of good market links.
- 3) Absence of range of ready to eat food products on which a robust marketing strategy could be built, as well as compliance with recent food safety and traceability standards.
- 4) Further compliance of food companies producing ready to eat meals to international standards to facilitate export procedures.
- 5) Lebanon as a country is still denied the possibility to export animal origin products to a large number of western countries, thus eliminating the possibility of exporting certain RTE products.

6. BUSINESS ENVIRONMENT FACTORS AFFECTING THE PROCESSED FOODS VALUE CHAIN

REPRESENTATIVE ORGANIZATIONS IN THE PROCESSED FOODS SECTOR

There are two main organizations that play a representative role for actors in the processed food sector: the Syndicate of Lebanese Food Industrialists (SLFI) and the Chamber of Commerce and Industry, and to a lesser extent, the Association of Lebanese Industrialists (ALI). The interventions of SFLI and the Chambers are described below.

1.1 SYNDICATE OF LEBANESE FOOD INDUSTRIALISTS (SLFI)

Founded in 1995, the Syndicate represents over 150 food manufacturers, and 85 percent of all major food exporters. The SLFI supports its members in their business endeavors, organizes Lebanese national pavilions in international food fairs, and advocates for its stakeholder's interests with concerned authorities. SLFI has recently been emphasizing assistance to help the industry increase its exports through more innovative marketing. It encourages members and the food industry in general to develop marketing strategies and campaigns to reach new markets and expand their businesses. Cooperation among actors within the value chain has been difficult and presents a major challenge for SLFI. Business owners are independent and the benefits of collaborating horizontally and vertically within the value chain are not apparent to them. As a result, instead of improving cooperation, the Syndicate is mainly focused on lobbying the government for support and policy reform to assist enterprises. The only material assistance provided by SLFI is co-financing for food pavilions. SLFI receives the funding from IDAL to cover part of the exhibitor's cost, and in turn any company that wants to exhibit in the Lebanese Pavilion would have to go through SLFI.

1.2 CHAMBER OF COMMERCE AND INDUSTRY (CCI)

The Chambers of Commerce of Industry and Agriculture which is headquartered in Beirut with branches in Zahle, Saida, and Tripoli, is a non-profit private organization that has the exclusive rights to the provision of services to business enterprises, namely issuing certificates of origin and authentication of invoices and commercial documents. This authority provides the Chamber with significant responsibility since all Lebanese processors who export must receive approval from them. The CCIA advocates the development and promotion of agricultural activity by providing market information at the local and international level, organizes participation in international fairs, promotes Lebanese products, and provides technical assistance to agro-producers and exporters. The CCIA has also established with the support of USAID three regional "Pilot Plants", in Zahle, Saida, and Tripoli that aim to help small and micro-processors develop new products. USAID also funded analytical laboratories in the regional chambers that perform required lab testing for processed foods.

7. REGULATORY ENVIRONMENT FOR FOOD SAFETY

Responsibilities for food safety regulations for processed foods are shared by several bodies in Lebanon. These are described below.

2.1 MINISTRY OF AGRICULTURE

Through its sectorial strategy, the Ministry has worked on enhancing linkages between agricultural and agro-food activities, and has included the development of agro-food industries in its support scheme. The MoA has made a concerted effort to push for better product traceability in the processed food sector. In particular, the MoA has set up a contract farming program to subsidize agricultural production for processing if the processor enters into a formal agreement with the producer. In 2010, The MOA and the Ministry of Industry issued a law (950/1) requiring the registration of all food factories with a sanitary number, and the implementation of technical control on different aspects of production, and meeting HACCP and GMP requirements. To qualify for the sanitary number, processors are required to pass an audit by the MoA. The sanitary number allows food factories to market their products locally and to export them internationally. Realizing that many, if not most, factories would shut down if the law was strictly enforced immediately, the MoA established a grace period that varies based on the extent of necessary upgrades

The new law has had a positive impact on the industry as evident by improvements made by several factories. One factory visited by LIVCD when the law was initially introduced was given a warning to upgrade or shut down due to the severity of the finding, and when recently visited, the same factory has undergone major structural improvements to meet GMP requirements as imposed by the MoA.

2.2 MINISTRY OF INDUSTRY

The Ministry of Industry is responsible for maintaining quality standards and promoting better production practices. Its Industrial Research Institute (IRI) conducts product testing and issues quality certifications. The Ministry supports the Euro-Lebanese Centre for Industrial Modernization program (ELCIM) providing technical support for manufacturers on issues of production, finance, and marketing.

2.3 MINISTRY OF ECONOMY AND TRADE

The Ministry of Economy and Trade hosts the European funded Qualeb program whose mission is to provide extensive support and advice to strengthen quality management capabilities and infrastructure in Lebanon. Qualeb seeks to align Lebanese practices to match EU practices in the fields of standardization, testing, certification and inspection, accreditation technical regulations and conformity assessment, and market surveillance.

2.4 THE LEBANESE STANDARDS INSTITUTION (LIBNOR)

LIBNOR is a public organization affiliated with the Ministry of Industry that was established in 1962. The organization creates, disseminates, and amends Lebanese standards and is the only responsible party that can validate the Lebanese Conformity Mark (NL Mark). LIBNOR provides standards for all products within the agro-food, chemical, construction, mechanical, electro technical and electromechanical sectors. In addition, standards include measurements, conventions, methods of analysis and testing, codes of practice for technical work, and technical rules and codes for buildings.² LIBNOR recently activated a seal of quality for products abiding by the set of mandatory standards they release.

² LIBNOR website <http://www.libnor.org/AboutLIBNOR/LIBNORinBrief/tabid/55/Default.aspx>

8. SPECIFIC GOVERNMENT AND DONOR PROJECTS OF RELEVANCE TO PROCESSED FOODS

USAID / Action for Sustainable Agro-Industry in Lebanon (ASAIL)

The Action for Sustainable Agro-Industry in Lebanon (ASAIL) program expanded economic opportunities for SMEs, cooperatives, and producers in the small ruminant dairy and niche Lebanese products value chains. Implemented from November 20, 2005 to February 28, 2008 by ACDI/VOCA, in coordination with local partner Vitech Consulting, this two year and five month, \$6.9 million project was funded by USAID. ASAIL provided extensive technical assistance, marketing, business development, and access to finance facilitation, and was committed to working closely with enterprising producers, processors, and other stakeholders.

USAID / Lebanon Business Linkages Initiative (LBLI)

ACDI/VOCA also implemented the Lebanon Business Linkages Initiative (LBLI), a \$7.5 million project funded by USAID for over three years based on two practical private sector concepts that improved livelihoods of small farmers and boosted the competitiveness of Lebanese agro-food processors. LBLI addressed economic growth and poverty reduction in Lebanon by working directly with the business sector facilitating technical assistance, and providing guidance on marketing and access to finance. It focused on strengthening the support framework in two Lebanese industries: agribusiness (primarily high-value foods) and tourism.

Euro-Lebanese Centre for Industrial Modernization (ELCIM)

ELCIM was initiated in 2001 by the Lebanese Government in order to improve the performance of Lebanese manufacturing enterprises. Based on the encouraging results of the first phase (2001-2004), a second phase started in August 2005 aimed at establishing ELCIM as a business support organization, which continuously advises and assists manufacturers in improving their performance on both national and international markets and in facilitating access to long-term financial resources.

ELCIM was co-funded by the European Union (EU), and was part of the EU co-financed Integrated SME Support Program (ISSP), helping Small and Medium Enterprises (SMEs) in Lebanon by providing a combination of legislative, business development and financing support. Hosted at the Industrial Research Institute (IRI) which already offers a wide range of business services, ELCIM became a permanent center providing continuing assistance, business advice, and specialized services to manufacturing SMEs. The range of activities currently covered is focused on special training, technical assistance to SMEs, assisting the SME support center at the chambers, hosting a food advisory service with three universities and three pilot plants, hosting the LEBANON SOFTSHORE ICT cluster, consultancy for ISO standards, GMP, and HACCP.

Agro-Food Technical Institute in Qab Elias

The Agro-Food Industries Vocational School located in Qab Elias is an innovative institution established as a joint venture between the Lebanese Ministry of Higher Education, the Directorate General of Vocational and Technical Education, and the SLFI, with funding and support from the EU. The educational programs merge theory and practice in accordance with European standards, and make use of a curriculum that covers all aspects of industrial food production in line with the latest industrial innovations. Graduates from the Qab Elias vocational schools are typically hired by food processing companies, however better links can be created between the school and the industry.

9. ACCESS TO FINANCE

Credit sources to the processed food sector in Lebanon take mainly the form of loans in addition to leasing in the case of financing of equipment. The Lebanese government has given the private sector little support to help them access the financial market. The two main supportive instruments available in Lebanon are: (1) a specific subsidy for interest payments made by qualifying enterprises and (2) the Kafalat loan guarantee program. The interest subsidy is provided through the Banque du Liban for loans granted by commercial banks to SMEs in the following sectors: industrial, agricultural, tourism, handicrafts, high technology and programming. The loan is used to finance a new project or expand an existing one. The loan amount varies between LBP 50 million to 15 billion with a maximum duration of seven years and a grace period maximum of two years. By applying for an interest rate subsidy, the interest rate is reduced by seven percent on loans up to LBP 5 billion and by 5 percent on the part ranging from LBP 5 billion up to 15 billion.

Kafalat is a Lebanese financial company with a public concern that assists small and medium sized enterprises (SMEs) to access commercial bank funding. It guarantees up to 75 percent of the loan amount, based on business plans or feasibility studies that show the viability of the proposed business activity. It also guarantees up to 90 percent of the loan amount for startups. Kafalat targets SMEs and innovative startups that belong to one of the following economic sectors: industry, agriculture, tourism, traditional crafts, and high technology. Since Kafalat does not stipulate a minimum loan amount, the scheme could be accessible to clients whose needs are in the range of micro finance. A characteristic of the program suited to the needs of small businesses is the low reliance on collateral.

10. FOOD PROCESSING COOPERATIVES

There are around 100 cooperatives involved in food processing activities. These include cooperatives open only to women and mixed gender cooperatives. These cooperatives employ a total of nearly 1,000 women and are distributed across all Lebanese rural areas. Food processing cooperatives tend to be small with only 10 percent having more than 20 members. They are active mainly in producing traditional Lebanese foods including jams, syrups, pickles, food preserved in oil, molasses, labneh, dry food, and herb products. Cooperatives differ in their structure and operation. Some cooperatives have an advanced set-up and apply advanced technology in production while others have more rudimentary facilities. The majority of cooperatives have received various levels of funding from local and international donor organizations, with the most prominent donors being USAID and UNDP. Assistance has been centered on the provision of equipment and infrastructure as well as capacity building. Trainings have mainly focused on the following areas: food processing, small business management, quality control procedures and

market linkages. USAID has mainly provided assistance to cooperatives in the north, while the UNDP work was concentrated in the South. Additionally, USAID programs have equipped the Chambers of Commerce in all Lebanese areas with the equipment necessary for quality control checks and testing of food products. This has allowed cooperatives to better meet quality standards in both local and international markets. Most cooperatives suffer from a number of serious problems in the areas of marketing and sales and production standards. Potential for linking cooperatives with industrial firms as providers of semi-processed goods or of raw product is a possible approach which has not been explored and may show some promise. For in-depth analysis of processed foods cooperatives, please see Annex B.

11. UPGRADING STRATEGIES FOR PROCESSED FOODS

The detailed discussions of the four profiled products discussed above reveals that there are some important constraints that are common to all processed foods. These include problems due to the lack of professionalism in marketing, a shortage of technically qualified employees and supervisors, minimal adherence to food safety standards, inadequate capacity on the part of SLFI, and problems in local raw material supply. In addition there are a number of more specific constraints that apply to each of the four profiled products. In the section below, we address first the common constraints with a proposed upgrading strategy that would apply generally to multiple products in the processed foods sector. Then we address some specific upgrading measures for each of the four products discussed in detail in the second part of this study.

GENERAL PROCESSED FOODS UPGRADING ACTIVITIES

There are five key axes of the processed foods upgrading strategy. Each of these is detailed below:

Axis one: Provide needed market intelligence and help processors enter new markets and expand new ones. Processors clearly need detailed market studies to retool their product strategies in order to take advantage of local and export market trends. They need guidance on relevant standards in target markets, prices, competitor strengths and weaknesses, distribution channels, costs of entry, and consumer preferences. LIVCD can work with marketing consultants to provide the needed studies, possibly in conjunction with SLFI, to provide information on potential target markets, gap analyses between market requirements, and Lebanese processor capacity in order to help processors develop realistic marketing and promotional strategies. A final step in this process would be to link Lebanese processors with foreign importers, brokers, and or distributors and help them develop needed promotional materials.

Axis two: Develop SLFI to be a fully functional business association capable of providing needed services to members. Through a grant, help transform SLFI into a sustainable association that can lead the food processing sector and improve its competitiveness by providing the following services to its members: (a) help them to gather market intelligence (see Axis One above); (b) collect and maintain a database with important regulatory and technical requirements in local and export markets, including packaging and labeling requirements and information on allowable additives. Such a database was been created with assistance from a prior USAID project, however the database that was housed with CCIA was not maintained. (c) Promote Lebanese cuisine in local and export markets; and (d) Improve the performance of the Qab Elias vocational school which is co-managed by SLFI, to improve the quality of its graduates so they can address the needs of the industry.

Axis three: Help Lebanese food processors to improve efficiency and meet international food safety and labeling standards. Collaborate with local entities such as ELCIM and the “SME Support Centers” in the Chambers of Commerce to provide training and technical assistance on Lean Manufacturing aimed at improving the efficiency of factories, reducing costs, and improving safety and quality. Other areas where training should be provided include food safety systems such as HACCP and ISO 22000. Another set of activities could be targeted at working with LIBNOR and SLFI to create and promote a food quality seal—perhaps even helping to implement the existing LIBNOR quality seal program that has not yet been put into action. Finally, LIVCD can provide tailored technical assistance to individual processors to improve their capabilities in product and process development in order to optimize product quality, reduce costly formulations, improve food safety, and develop needed food packaging solutions. This will also entail coordinating with LibanPack to improve product labeling and packaging to meet market expectations.

Axis four: Increase participation of farmers, small firms, and cooperatives in the processed foods value chain. LIVCD can work to help processors improve their supply chain by developing outsourcing agreements with farmers, smaller private firms, and cooperatives to supply raw and semi-processed product. This will be done through the stimulation of vertical linkages with written contracts specifying quality parameters and through the facilitating of financing in support of these agreements. Farmers can be supported to introduce new varieties that are suitable for processing and with technical assistance to improve production practices and post-harvest handling to minimize losses and improve quality. LIVCD will also collaborate with local NGOs such as Namlied and Atayeb Al Reef to extend the market reach of food processing cooperatives.

Axis five: Promote new investments in processed food supply chains with appropriate partners. LIVCD will first perform a survey of all processing equipment and facilities available in rural areas that have been donated or purchased by donor-supported projects, especially USAID-funded projects, and create a plan to maximize their utilization. Depending on the results of this survey, the project will consider using its public-private partnership (PPP) mechanism to co-invest in rural areas in needed processing equipment that would be used to provide private partners with product that they require. Possible investments would include: (a) bulk freezing facilities to be used for seasonal fruits such as apricots, strawberries, figs, and cherries to be used in jam; (b) fruit drying facilities; and (c) fresh cut vegetable production units in various agricultural regions.

PRODUCT-SPECIFIC UPGRADING STRATEGIES

2.1 JAMS

The following upgrading activities apply only to jams:

- 1- Support processors in developing low calorie jams as well as jams with other natural sweeteners.
- 2- Create forward contracts between farmers and processors to insure adequate supply of suitable fruits required for jam processing.
- 3- Help jam processors identify an alternative filler fruit to low cost jams when apples are expensive.
- 4- Help processors upgrade their jam production technologies to produce better quality jams that can compete with high-end European products.

2.1 PICKLES

Elements of an upgrading strategy specific to pickles include the following points:

Axis One: Support local fermented cucumber processors by improving quality while keeping cost levels down with more vertical integration and the development of a modern fermentation process. This would entail support for contract farming agreements between local processors and growers for cucumbers and support to processors on bulk tank fermentation.

Axis Two: Provide technical support to local processors and exporters in marketing improved fermented product in the local market and abroad in order to increase market share of Lebanese pickles. The first step would be a market study in Lebanon and the GCC in order to establish an estimate of the pickled cucumber market size, and determine an actual baseline and potential increases within the coming three years. Next, support will be provided to processors in the development of their label and brand image. Finally, LIVCD can help with actual market linkages and access in GCC, North American, and EU markets.

2.2 DAIRY PRODUCTS

Dairy upgrading would need to include the following key points:

Axis one: Identify the most promising eligible target markets and the local market segments for specific dairy items. LIVCD can conduct needed market research and analysis in target markets such as UAE, KSA, Iraq, Jordan, Kuwait, as well as the Lebanese market. This work will identify which of the markets are significant importers of dairy products, specifically cheese and labneh products, their market trends, the existing products on the market and the brands behind them, the prevailing distribution channels, the selling prices, and applicable regulatory and religious conditions. This work will be used to select specific market links and distribution channels most suitable for the relevant types of dairy products. LIVCD can also help to educate consumers in GCC on the difference between Turkish labneh which includes additives as opposed to additive-free Lebanese labneh.

Axis Two: Help a number of dairy farms to meet GLOBALG.A.P. standards. LIVCD will identify a list of dairy farms that are active in the supply of exporting dairy processors and perform a quick assessment of their compliance with GLOBALG.A.P. requirements. This will be used to establish an action plan that will outline needed remedial actions to ensure that the committed farms are in compliance.

Axis Three: Develop a program to support HACCP and ISO 22000 implementation in small and medium dairy processors. This will entail a quick assessment to establish a list of dairy processors who might be eligible for implementation of a food safety program. LIVCD will then organize and implement a food safety implementation program covering HACCP and ISO22000 with pre-assessment audits to implementing companies prior to their applications for certification.

2.3 READY-TO-EAT MEALS

The LIVCD ready-to-eat meals upgrading plan will include the following axes:

Axis 1: Help Lebanese processors to overcome market access hurdles in regional markets. This action can be completed by collaborating with processors, exporters and food distributors in the destination markets. It will build upon on the reputation of Lebanese food products, as well as the potential development of a

range of food products capable of gaining market share in the Arab markets. Specific elements of this axis include:

- Market survey and analysis in the destination markets (UAE, KSA, and Iraq) to identify potential products that can be provided by Lebanese processors with data on market size, trends, competitive products, distribution channels, market links, cost of entry, price range, and technical requirements;
- Identification of potential Lebanese processors who can supply the identified market opportunities with an assessment of their marketing strategies and technical gaps;
- Product development work with local processors in order to establish a range of ready to eat products to facilitate market penetration, create logistical synergy, and establish a unique selling propositions compared to competitive products existing in the market;
- Support for a selected number of processors in attending regional exhibitions to facilitate promotion of the new range of ready to eat products.

Axis Two: Build a market presence in western markets using Lebanese diaspora as a leverage point.

LIVCD will collect market data on potential ready to eat meal products in the Middle Eastern or Mediterranean food segments in the destination countries through desk research and contacts with actual distributors of Lebanese products in those countries. This will be augmented with the use of local experts in specialty markets. Next LIVCD will work with several processors in the selection and development of a range of food products having potential in those markets and in helping them to devise a market entry strategy. Selected processors will be supported in attending regional exhibitions with a specific target to promote the newly developed range of ready to eat products.

Axis Three: Promote compliance with food safety standards. LIVCD will provide consultancy and possibly support for the auditing of food companies hoping to export to allow them to supply international markets. LIVCD will also help public sector organizations, NGOs and other local organizations in fulfilling the minimal requirements for Lebanon to adhere to the list of approved exports of some or all animal origin products.

Axis Four: Promote collaboration between industrial entities and cooperatives for the production of ready to eat food products. In collaboration with local processors and based on market research, LIVCD will select the specific ready to eat products that appear to be unfit for industrial scale production due to the need of intensive labor or because of limited quantity. We will then visit and select a number of rural cooperatives that can, and are willing to, produce these items. These cooperatives will then be linked with processors and exporters. LIVCD will provide continued technical support to the cooperatives in the areas of product development, food safety and quality assurance, production and quality assurance, and marketing.

Axis Five: Accompany SLFI and ready to eat processors in the elaboration of a global ready to eat marketing strategy. This will be an important promotional tool for use in GCC and Western countries that will leverage the favorable market image of Lebanese cuisine. LIVCD will work with an ad-hoc working group including processors, food experts, exporters, and LIVCD staff to identify approaches for promoting ready to eat food outside of Lebanon. Two strategy documents will be prepared, one for regional markets and another for Western markets. These will be used to develop action plans that will help to mobilize support from other possible sources of funding—including SLFI members themselves.

ANNEX A: CLASSIFICATION METHODOLOGY

Two broad systems exist that can be used to classify processed foods. The International Standard Industrial Classification of All Economic Activities (ISIC) consists of a coherent and consistent classification structure of economic activities developed by the United Nations. It is most commonly used in national accounts. The Harmonized Commodity Description and Coding System (HS) provides a similar classification that was developed by the World Customs Organization mainly to categorize products for international trade. LIVCD was faced with a problem since it did not have access to ISIC data on output at the four digit level from the national accounts and HS data at the four digit level on imports and exports from the TRADEMAP international data base. The analysis used in this report which combined both these data sources meant that the team had to complete its own classifying mapping exercises in which the four digit HS codes for processed foods were all attributed to a specific four digit ISIC code category, thereby permitting a unified analysis. The key used for this exercise is given below for the highest ranked ISIC codes of the phase one selection process.

ISIC Code Rev. 4	HS Code	Description
1030		Processing and preserving of fruit and vegetables
	0710	Frozen vegetables
	0711	Vegetables provisionally preserved (for example, by sulphur dioxide gas, in brine, in sulphur water or in other preservative solutions), but unsuitable in that state for immediate consumption
	0712	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared.
	0713	Dried leguminous vegetables, shelled, whether or not skinned or split.
	0714	Manioc, arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar roots and tubers with high starch or inulin content, fresh, chilled, frozen or dried, whether or not sliced or in the form of pellets; sago pith.
	1105	Flour, meal, powder, flakes, granules and pellets of potatoes.
	2001	Pickled vegetables
	2002	Tomatoes prepared or preserved otherwise than by vinegar or acetic acid.
	2003	Mushrooms and truffles, prepared or preserved otherwise than by vinegar or acetic acid.
	2004	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen, other than products of heading No. 20.06.
	2005	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen, other than products of heading No. 20.06
	2006	Vegetables, fruit, nuts, fruit-peel and other parts of plants, preserved by sugar (drained, glacé or crystallised).
	2007	Jams, fruit jellies, marmalades, fruit or nut pure
	2008	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included.
	2009	Fruit juices
1073		Manufacture of cocoa, chocolate and sugar confectionery
	1704	Sugar confectionery (including white chocolate), not containing cocoa.
	1806	Chocolate and other food preparations containing cocoa.
1079		Manufacture of other food products n.e.c
	0901	Coffee, whether or not roasted or decaffeinated;
	0902	Tea, whether or not flavoured.
	0903	Maté.
	0904	Pepper of the genus Piper; dried or crushed or ground fruits of the genus Capsicum or of the genus Pimenta
	0905	Vanilla
	0906	Cinnamon and cinnamon-tree flowers.
	0907	Cloves (whole fruit, cloves and stems).
	0908	Nutmeg, mace and cardamoms.
	0909	Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries.
	0910.99.90	Mixed Spices
	2104	Soups and broths and preparations thereof; homogenised composite food preparations
	190110	Preparations for infant use, put up for retail sale
	190190	Other (infant food) - Malt extract & food prep of Ch 19 <50% cocoa
	2103	Sauces and preparations thereof; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard.
1050		Manufacture of dairy products
	0401	Milk and cream, not concentrated nor containing added sugar or other sweetening matter.
	0402	Milk and cream, concentrated or containing added sugar or other sweetening matter
	0403	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavoured or containing added fruit, nuts or cocoa
	0404	Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included.
	0405	Butter and other fats and oils derived from milk; dairy spreads.
	0406	Cheese and curd
1075		Manufacture of prepared meals and dishes
	1904	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal), pre-cooked, or otherwise prepared, not elsewhere specified or included.
	0710-90-00	Ready to eat meals- Vegetarian (LB Customs: -Mixtures of vegetables)
	0206-90-00	Ready to eat meals- Containing meat (Sheep, goats, asses, mules or hinnies edible offal, frozen)
	0207-14-00	Ready to eat meals- Containing Chicken (020714 Fowls (gallus domesticus), cuts & offal, frozen)
	0304-99-00	Ready to eat meals- Containing Fish
	2005-59	Chickpea Dip (Hommos Tahina) + Eggplant Dip (Baba Ghannouj)

ANNEX B: FOOD PROCESSING COOPERATIVES

Women's food processing cooperatives - Mapping & analysis

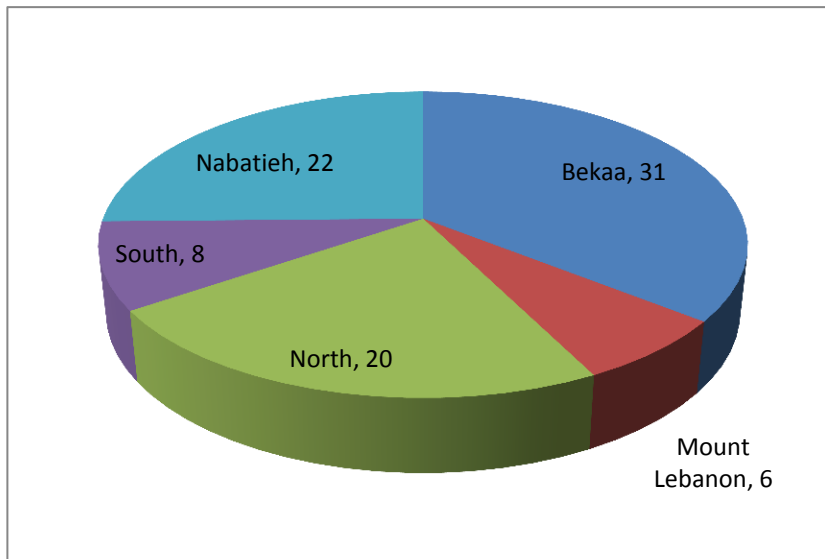
Following is a preliminary study that aims at evaluating the actual condition of women food processing cooperatives across rural areas and identifying the challenges that these working women currently face as well as possible opportunities and areas of improvement.

1. Overview

- There are around 100 cooperatives involved in food processing activities; these include both women only as well as mixed gender cooperatives.

- These cooperatives employ a total of nearly 1,000 women and are distributed across all Lebanese rural areas (For a detailed list of these cooperatives, refer to Annex I of the report).

FIGURE 12: GEOGRAPHIC DISTRIBUTION OF ACTIVE PROCESSED FOODS COOPERATIVES IN LEBANON



- Coops are mainly composed of 12 members on average, while only 10 percent include more than 20 members.
- The foods produced by these cooperatives are mostly traditional Lebanese foods ‘Mouneh’ and include mainly: jams, syrups, pickles, food preserved in oil, molasses, labneh, dry food, and herb products. (For a full list of foods produced refer to Annex II of the report).
- Cooperatives differ in their structure and operation. Some cooperatives have an advanced set-up and apply technology in their production while others have more rudimentary production facilities.
- The majority of cooperatives have received various levels of funding from local and international donor organizations; with the most prominent donors being USAID and UNDP. Aid has been centered on the provision of equipment and infrastructure as well as capacity building. Trainings have mainly focused on the following areas: food processing, small business management, quality control procedures and market linkages. Additionally, USAID programs have equipped the chambers of commerce in all Lebanese areas with the equipment necessary for quality control checks and testing of food products. This has allowed coops to better meet quality standards in both local and international markets.

2. Challenges

In addition to the common challenges mentioned in the first section of this report that are faced by types of cooperatives in Lebanon, there are additional challenges which are specific to food processing cooperatives:

- High cost of agricultural inputs due to dependence on the local agricultural sector | There is a much closer link between food processing cooperatives and the agricultural sector than with the big food processing enterprises in the country which might at times depend on imported raw material. Cooperatives typically process fruits and vegetables that are indigenous to their area. This therefore renders food processing cooperatives dependent on the local agricultural sector. In its turn, the agricultural sector in Lebanon suffers from high labor costs and from the state of the infrastructure (transport, irrigation) which raises costs even higher. Imported fruits and vegetables are cheaper than locally produced ones, and even though they are not for the most part better in quality; they are suitable for food processing. This gives an advantage to food industrial companies that typically buy in bulk and have easy access to wholesale markets where imported produce is sold. Since coops typically rely on Fruits and Vegetables produced in their villages or surrounding villages that tend to be higher in cost; this along with other factors such as economy of scale in processing, puts coops at a cost disadvantage relative to industrial processors or foreign processors.
- Volatile Sales | The primary limiting factor in the cooperatives' production volume is not production capacity but assured sales.
- Access to Finance | Capital is a secondary limiting factor: due to limited availability of capital to finance the purchase of raw materials, cooperatives tend to produce as close to demand levels as possible. Therefore, had overall sales reached their targeted levels, it is thought that production volumes and efficiencies would have expanded to meet demand.

3. Production process

Pursuant to an assessment of their operations, Food Processing cooperatives can be classified into three categories relative to their stage of development: Unacceptable, Acceptable or Advanced. This categorization depends on their manufacturing practices, facilities and personnel know how.

Stage	Common Characteristics	Areas of Improvement
Unacceptable	<p>Members produce individually in their houses</p> <p>Coop either doesn't have a centre and proper equipment or the location is not suitable for food production. (E.g. Members might use a room in the house of one of cooperative members for production)</p> <p>Poor knowledge and understanding of good manufacturing and hygiene practices</p> <p>Low experience in administrative or managerial matters such as accounting, marketing, bookkeeping and sales...</p> <p>Very poor information technology knowledge</p> <p>Inconsistency in the quality and physical appearance of the product</p>	<p>Provide Training and capacity building to develop members' technical and managerial skills including food processing, costing, accounting and bookkeeping...</p> <p>Develop the products technical specifications in order to cater to the minimum required local standards while maintaining and preserving their traditional aspect</p> <p>Provide rehabilitation assistance to improve the production centre/location and provide basic infrastructure to attain minimal food safety standards</p> <p>Provide the minimal required tools and equipment to improve production and adhere by food safety standards</p> <p>Assist in improving products in terms of appearance especially with regard to the product itself (colour and consistency for instance), its container and its label.</p>
Acceptable	<p>Cooperative owns an equipped production centre or location with acceptable production and hygiene conditions.</p> <p>women members are trained on food processing and management but might need refresher training</p> <p>Production quality is acceptable but requires a more scientific, clean, and hygienic production process</p>	<p>Maintain the building's infrastructure.</p> <p>Maintain and repair tools and equipment</p> <p>Provide specialized tools equipment and vehicles to improve production and adherence to food safety standards</p> <p>Assist in uplifting products in terms of packaging and display</p> <p>Train women on adapting GMP GHP and HACCP standards to improve production</p>
Advanced	<p>Coop owns a well-designed and equipped production centre</p> <p>Women highly trained and produce premium products.</p>	<p>This group might benefit from a recognizable quality seal to strengthen its brand image and reflect quality and product consistency</p> <p>Additional training should be provided to secure and maintain compliance standards especially that new additional requirements recently imposed by the EU and US which should be adopted and implemented.</p> <p>Purchase of specialized equipment and vehicles</p> <p>Further improvement of the Brand Name and Packaging of Products</p>

4. Finances and member benefits

Not all cooperatives provide a monthly salary for their workers. However, in the cases where the coop actually provides remuneration, the average monthly wage per worker amounts to approximately USD 110 (based on an approximation of annual income exclusively for cooperatives which pay their workers); some cooperatives workers earn over \$150 per month. Although this figure may seem low, in rural areas it is usually enough for women to help them cover school tuitions in public schools, monthly heating bills, and the purchase of basic food items. This therefore greatly contributes to the empowerment and financial autonomy of women in their households.

TABLE 8: RELATIVE CONTRIBUTION OF WOMEN'S INCOME TO HOUSEHOLD INCOME IN RURAL AREAS

Monthly remuneration	Impact on household conditions	Use of income
USD 75/ month	<i>Small</i> contribution to household income	<i>Doctor and Dentist fees</i> <i>Basic furniture and carpets</i>

USD 100/ month	<i>Medium</i> contribution to household income	<i>Children's school and bus transportation fees & clothing</i>
USD 150/ month & above	<i>Significant</i> contribution to household income	<i>Women considered as breadwinners in their households & now cover most utility costs, medical bills, and food items.</i>

Source: YMCA

It is to be noted that coop members are in fact entitled to a distribution of surplus earnings in proportion with the number of shares they own in the coop. Most commonly however, this distribution of earnings has not taken place, but rather members have been treated in the same manner as workers and are often compensated for their work by the hour or on a monthly or seasonal basis.

Despite the irregularity of personal income generated from coop work, some women opt to continue their work within the coop for a variety of reasons:

- They believe that although they may not earn income on the short run, their work will eventually be profitable on the long run
- They have a feeling of ownership and responsibility towards their business and are therefore willing to work without immediate compensation.
- They feel a sense of pride and earn a social role within their communities due to their work
- Work in the cooperatives widens their scope from being limited to raising their children and doing household chores. It gives them an opportunity of being productive outside their house and having a higher sense of worth.

In regards to financial reporting; the majority of the coops have proper documents for financial and accounting transactions such as invoices, receipts and payment orders. However, 45% of the coops do not have or maintain a current register book of transactions (income and expenses). This register is the official cooperative document required yearly by the Cooperative directorate at the Ministry of Agriculture. Several coop members explain that there is no need to maintain such official documentation since there is no real daily financial activity.

5. Market access & linkages

At the local level, cooperatives sell their products through the following points of sale:

- Directly from the centre or coop
- Through social networks in their respective villages, in Beirut, and sometimes abroad
- Local shops belonging to families of members
- Small shops throughout region
- Supermarkets in regional urban centres
- Exhibitions
- Local hotels, restaurants, and country clubs
- Local wedding centres
- Cafeterias in local private schools
- Community dinners

Some distribute through other channels like Fair Trade (Terroirs du Liban) Rural Delights Cooperative (Atayeb Al Rif), Namlieh (CRTDA), Caritas (Intajouna) and Mafco. Other coops also create distribution

channels through friends and relatives abroad, like Canada (as is the case with Ain Al Arish Cooperative), USA, EU and Gulf countries.

Most cooperatives sell their products to the markets through the following means:

- Under the brand name of the cooperative or under private label.
- By bulk
- By setting up small catering services
- Through cooperation with agro food enterprises in the processing of special products (stuffing grape leaves for conservation as a ready meal)

Recommendations

- Following ways to benchmark the product and monitor the market, adoption of sound marketing standards and necessary certifications to cater to export needs, sales requirements and market demands;
- Develop new products;
- Reduce of cost through more efficient processing and better management of the supply chain;
- Focus on high added-value products that industrial companies cannot compete with
- Improve quality and meet food safety standards, without getting certification of compliance if it is not needed.
- Secure manufacturing contracts with processors for items that are labor intensive that processors avoid
- Improve label design in order to improve the product presentation and better meet international labeling requirements ;
- Improve handling customer relations.

Key success factors - Ten essentials for successful women food processing cooperatives

The following factors are common characteristics that lead to high-performing and high capacity cooperatives:

- 1| The cooperative has sufficient working capital to purchase bulk raw materials;
- 2| The cooperative has more than one cycle of production per year, regardless of the local agricultural seasons;
- 3| The cooperative has several years of production and operational/management experience;
- 4| The cooperative has a strong leader. She is both a manager and a social leader
- 5| The cooperative's members have received training (institutional and technical training);
- 6| The cooperative's members are outgoing and mobile and therefore able to make contacts and cultivate linkages outside of their immediate area of operations and relations;
- 7| The cooperative is fully independent;
- 8| The cooperative sells related services, such as event or institutional catering and fee-based processing of local farmers' produce, services in which they have a comparative advantage due to ownership of the production center and advanced equipment;

- 9| The cooperative has the financial and technical support of the municipality as well as strong support from the community as a whole;
- 10| The cooperative actively solicits and develops support from a range of sources, including municipalities, government representatives, community-based and religious-based organizations, NGOs, foundations, etc.;

Recommendations and future actions

The mapping exercise above, together with the account on current challenges, allow us to identify areas of improvement within the work of Lebanese coops.

Below are the main areas whereby the LIVCD project can assist Lebanese Coops and help boost their performance:

- Nurturing this natural proclivity to food processing and adding value through improved scientific practices in quality standards, processing, marketing, branding, and information and communication technology.
- Promoting partnerships through the active participation by women producers, farmers, community leaders and local governments (municipalities). Encouraging local actors to provide financial and in-kind contributions and moral support to the program.
- Mobilizing local partners, coops, women groups and farmers, and strategic alliances to provide value-added.
- Creating linkages between cooperatives and the market; locally and abroad to ensure that the products meet consumer demands in terms of quantity and quality.
- Creating linkages between the cooperatives and industrial food processors with the objective of having cooperatives reach a supply agreement with processors.
- Increasing supply of locally procured fruits and vegetables through linkages to farmers and improving farmers' output.
- Creating links between the municipalities and the local women cooperatives and groups to encourage local governments to be more actively engaged and economically involved in the development of their respective communities.
- Building on the successes and lessons learned from previous projects to design complementary activities and avoid duplication of work.

References and useful documents on Lebanese cooperatives:

- دليل الجمعيات التعاونية في لبنان (2008)
- Directory of cooperatives in Lebanon (2008)
- Rural Women Producers and Cooperatives in Conflicts Settings in the Arab States; Simel Esim and Mansour Omeira , International Labour Organization, Regional Office for the Arab States, Lebanon
- Stimulating Markets and Rural Transformation Program (SMART) USAID-YMCA Lebanon (2005)

The cooperative law of 1964 (amended in 1972)

The law defines cooperatives as non-profit organizations whose objective is to improve the socioeconomic conditions of its members through cooperation between them toward a common objective. No more than one cooperative with the same purpose can be established in the same village, if its population is less than 20,000. A cooperative should be composed of at least ten people.

A cooperative is governed by an executive board (مجلس ادارة). The Ministry of Agriculture is responsible for registering, assisting, and monitoring all cooperatives in Lebanon, through a Cooperatives Department within the Ministry. The registration process entails that the cooperative submits an application to the Cooperative Department. This should include the name and signature of members, the name of the cooperative, its objectives, regional and sectorial scope, in addition to the profile of its founding members and the number and value of its shares.

The Cooperative Department should come back with its decision within a period not exceeding two months after the submission of the application. Upon approval, at least 2/3 of the signatories on that application officially meet to ensure payment for shares, and vote for the board of directors (3-7 members) and the audit committee (3 members). Cooperatives are exempt from taxation including municipal taxation (including electricity, water, construction license etc.), fees (including fees for publishing in official bulletins, conducting lab exams in governmental institutions), indirect taxation (cooperatives are exempt from 50 percent of fees to export products outside) and direct taxation (income tax on profit of cooperative, tax on transfer of grants, tax on real estate owned by the cooperative). The National Union for Cooperative Credit is mandated by law to regulate disbursement of credit to cooperatives (It ceased to exist in the 90s). A citizen cannot be a member of two cooperatives with the same objective.

Source: National Federation of Cooperatives (through ILO Office Beirut)

TABLE 9: FOOD PROCESSING COOPERATIVES IN LEBANON (WOMEN & MIXED)

1	Ain Atta	الجمعية التعاونية الإنتاجية في عين عطا-عين اللوز
2	Ayha	تعاونية عيحا للمنتوجات القروية
3	Al Ileik-Baalbeck	الجمعية التعاونية اللبنانية الحرفية والتصنيع الزراعي والحرفي في العلاق وجوارها "أصالة الريف" م.م
4	Baalbek	الجمعية التعاونية لإنتاج المواد الغذائية في مدينة بعلبك والجوار م.م
5	Bednayel	الجمعية التعاونية الإنتاجية "زادت الخيرات" في بدنايلم م
6	Chmesttar	الجمعية التعاونية لتقطير ماء وزيت الورد في شمسطار م.م
7	Deir el Ahmar	الجمعية التعاونية لتصنيع المنتجات الزراعية في دير الأحمر -جنى الأيادي
8	El Ain	جمعية تعاونية الشابات الريفيات "صحنتين"
9	Fakiha	الجمعية التعاونية الإنمائية "طيبات" الفاكهة -البقاع
10	Fourzol	الجمعية التعاونية الإنتاجية للمرأة الريفية
11	Ham	الجمعية التعاونية الإنتاجية لبلدة حام وجوارها

12	Hermel	الجمعية التعاونية "الروابي" لتصنيع وتسويق الإنتاج المحلي في قرى قضاء الهرمل م.م
13	Hermel	الجمعية التعاونية الإنتاجية للمواد الغذائية "الأمل" م.م
14	Hermel	الجمعية التعاونية لإنتاج الصناعات الغذائية "السندان" م.م
15	Hermel	الجمعية التعاونية الإنتاجية في الهرمل "جبالنا" م.م
16	Hermel	الجمعية التعاونية الإنتاجية في الهرمل (حي العسري)
17	Hosh Al Oumara-Zahleh	الجمعية التعاونية للتصنيع الغذائي في حوش الأمراء "خيرات السهل" م.م
18	Irsal	الجمعية التعاونية "المونة الريفية" في عرسال م.م
19	Jdita	الجمعية التعاونية الإنتاجية عين الوردة -جديتا
20	Kawkaba -Rachaya	الجمعية التعاونية لإنماء القطاع الزراعي في كوكبا وجوارهل
21	Khirbet Kanafar	الجمعية التعاونية الحرفية -خربة قنافر "السنديانة"
22	Ksarnaba	الجمعية التعاونية الإنتاجية في قصرنبا "خيرات البقاع" م.م
23	Mansourah	الجمعية التعاونية الزراعية لتصنيع الإنتاج وتصريفه في المنصورة وجوارها "زودة البيدر" م.م
24	Mhaydseh	الجمعية التعاونية الإنتاجية "نجمة الصبح" في المحيدثة م.م
25	Moualka-Zahleh	الجمعية التعاونية الإنتاجية في المعلقة وجوارها "أميرة الطبيعة" م.م
26	Rchaya Al Wadi	الجمعية التعاونية النسائية لتصنيع الزراعي "وادي التيم" م.م
27	RasBaalbeck-Jabbouleh	الجمعية التعاونية للتنمية وتصنيع الإنتاج الزراعي "سهولنا" م.م في البقاع الشمالي
28	Riyak	الجمعية التعاونية للإنتاج والتنمية "الريف" م.م
29	Tarayya-Baalbeck	الجمعية التعاونية للتصنيع الغذائي والحرف "المواسم" م.م
30	Wadi el Arayesh	الجمعية التعاونية لتصنيع الإنتاج الزراعي وتعليبه -وادي العرايش
31	Zahleh	الجمعية التعاونية لتصنيع المنتجات الزراعية وتسويقها "شغل البيت" م.م
Bekaa		
32	Baskinta	الجمعية التعاونية النسائية لتصنيع الإنتاج الزراعي والأشغال اليدوية في بسنتا
33	Bater	الجمعية التعاونية الزراعية الإنتاجية "جنى البساتين"
34	Kartaba	الجمعية التعاونية الزراعية الإنتاجية في قرطبا "مزايا"
35	Kfardebian	الجمعية التعاونية لسيدات كفرديبان "الأطايب"

36	Lehfed	الجمعية التعاونية الإنتاجية الزراعية لسيدات لحفد "حفد الخضراء"
37	Mayrouba	الجمعية التعاونية الزراعية الإنتاجية -ميروبا"مواسمنا"
Mount Lebanon		
38	AinYaaccoub	الجمعية التعاونية الزراعية التصنيعية للسيدات في عين يعقوب-عكار م.م
39	Akkar Al Atika	الجمعية التعاونية لتصنيع المنتجات الزراعية في عكار العتيقة م.م
40	Amayyer village-Wadi Khaled	الجمعية التعاونية للتنمية الريفية والتصنيع الزراعي في العمائر-وادي خالد-عكار م.م
41	Andaket	الجمعية التعاونية عندقبت للتنمية والتصنيع Andaket Pro – عكار م.م
42	Assia	الجمعية التعاونية آسيا للنباتات العطرية م.م
43	Bebnine	الجمعية التعاونية الزراعية الإنتاجية التصنيعية لسيدات ببنين وجوارها م.م
44	Beit el Fakess	الجمعية التعاونية للإنتاج الريفية في الضنيهم م.م
45	BeitShelala	الجمعية التعاونية لتصنيع الإنتاج الزراعي والحيواني في بساتين العصي -كفر حلدا"الشلال"
46	Bhanine-Minieh	الجمعية التعاونية الإنتاجية للسيدات في بلدة بحنين-المنية م.م
47	Fneydek	الجمعية التعاونية لتصنيع الإنتاج الزراعي في فنيديق
48	Hazouk	الجمعية التعاونية النسائية لتصنيع الإنتاج الزراعي في حيزوق ظ عكار م.م
49	Hilane-Zghorta	الجمعية التعاونية الإنتاجية للسيدات في حيلان ظ زغرنا م.م
50	Jdehydet el Qayteh	الجمعية التعاونية الزراعية لسيدات جديدة القيطع
51	MachtaHamoud	الجمعية التعاونية الإنتاجية النسائية في مشتي حمود ظ عكار م.م
52	Mechmech	الجمعية التعاونية النسائية لتطوير وتصنيع المنتجات الزراعية في مشمش عكار م.م
53	Rahbeh	الجمعية التعاونية النسائية الإنتاجية في رحبة عكار م.م
54	Tannourine	الجمعية التعاونية لتصنيع المنتجات الزراعية في تنورين" المحمية"
55	Tekrit	الجمعية التعاونية الزراعية في تكريت "الأرض الطيبة"
56	Wdi Al Jamous	الجمعية التعاونية الإنتاجية للسيدات في وادي الجاموس - عكار م.م
57	Zghorta	الجمعية التعاونية التصنيعية لسيدات زغرنا
North		

58	BorjRahal	الجمعية التعاونية النسائية للتنمية والتصنيع الزراعي في برج رحال والجوار م.م
59	Chehabiyeh	الجمعية التعاونية للإنتاج والتصنيع الزراعي في الشهابية
60	DeirQanoun el Naher	الجمعية التعاونية لإنتاج وتصنيع المواد الغذائية في دير قانون النهر "جدتي"
61	Deir Qanoun Ras el Ain	الجمعية التعاونية للتصنيع والإنتاج الزراعي في دير قانون رأس العين "موسم الضيعة"
62	Dhaira	الجمعية التعاونية للإنتاج والتصنيع الزراعي في الضهيرة
63	Halloussiyeh	الجمعية التعاونية للزراعة في الحلوسية
64	HaretSaida	الجمعية التعاونية لتصنيع وتسويق المنتجات الزراعية في حارة صيدا
65	Yarine	الجمعية التعاونية للإنتاج والتصنيع الزراعي في يارينم.م
South		
66	Adshit	الجمعية التعاونية للزراعة الإنتاجية في عديشيت
67	AinEbel	الجمعية التعاونية الزراعية للإنتاج والتصنيع الغذائي في عين إبل
68	Aita Al Chaab	الجمعية التعاونية الزراعية لتطوير قدرات المرأة في الإنتاج والتسويق في بنت جبيل
69	Aitaroun	الجمعية التعاونية للإنتاج والتسويق الزراعي في الحرفيين في أيتارون
70	Arabsalim	الجمعية التعاونية للإنتاج والتصنيع الزراعي في عربصاليم "زودة الضيعة"
71	Arabsalim	التعاونية الزراعية العامة في عربصاليم
72	Aramta	الجمعية التعاونية للتصنيع الزراعي في عرمتم.م "خيرات عرمتي"
73	Arnoun	الجمعية التعاونية النسائية للتنمية الريفية - أرنون "منتجات المرأة الريفية"
74	BintJbeil	الجمعية الحرفية للخياطة والتطريز والحياسة (تم تعديل نظامها الأساسي لتصبح إنتاجية أيضاً)
75	Chakra	الجمعية التعاونية للإنتاجية للتصنيع الزراعي في شقرا "قلعة دبي"
76	Debel	الجمعية التعاونية الإنتاجية في دبل
77	Ebel el Saki	الجمعية التعاونية الإنمائية للتصنيع الغذائي في ابل السقي "غلة الموسم"
78	Kfarkila	الجمعية التعاونية للتنمية الزراعية والثروة الحيوانية في كفر كلا

79	Hariss	الجمعية التعاونية للغذاء الريفي في حاريس
80	Hasbaya	الجمعية التعاونية التصنيعية الزراعية والحرفية لسيدات حاصبيا م.م
81	Jba'a	الجمعية التعاونية للتصنيع الغذائي والزراعي والحرفي في جباع
82	Kfarsyr	تعاونية الإنتاج والتصنيع الزراعي في كفرصير -مرج النبعة
83	Khelwat	مجموعة إنتاجية تابعة لجمعية نور
84	Ksaybeh	الجمعية التعاونية لتصنيع المنتجات الزراعية -القصيبة "ريفيات"
85	Mayfadun	الجمعية التعاونية للإنتاج وتسويق خيرات الريف اللبناني فيميدون
86	Mays Al J abal	الجمعية التعاونية للإنتاج والتصنيع الزراعي في ميس لجبل م.م
87	Yohmor	الجمعية التعاونية الزراعية في حمر وجوارها
Nabatieh		
88	Rural Delight	الجمعية التعاونية للإنتاج وتصنيع وتصريف المواد الغذائية "أطيب الريف" م.م

TABLE 10: LIST OF PRODUCTS BY REGIONS AND COOPS OF SPECIALTY

List Of Products	Region of Specialty	Coop of Specialty
DRY GOODS		
Cracked Wheat/Coarse Brown	Bekaa-Nabatieh	Hariss
Cracked Wheat/Fine Brown	Bekaa-Nabatieh	Hariss
Freekeh	Nabatieh-South	Hariss-BintJbeil
Salty Grilled Wheat	Bekaa	Mouhaydseh
Kishk/Cow Milk	Bekaa	Deir Al Ahmar
Kishk/Goat Milk	Bekaa	Aita al foukkar
Pine Kernels	Mount Lebanon-South	Aramta
Vine Leaves (in vacuum)	Bekaa	Fouzol
DISTILLED WATERS		
Mint water	All over lebanon	
Orange Blossom Water	South-North(Coast)	
Rose Water	Bekaa-Mount Lebanon	
Rosemary water	All over lebanon	
Sage Water	South-North	

Thyme water	South-North-Mount Lebanon	
DRIED FRUIT		
Apple Bites	North-Mount Lebanon	Kfardebian
Prune Roll-ups	Mount Lebanon	Kfardebian
Raisins	Bekaa	Deir Al AhmarAita al foukkar
Sweetened Orange Peel	South-North	Bater
COOKED FOOD		
Artichoke In Brine	Bekaa	Forzol
Green Beans In Brine	Bekaa	
Green Beans/Okra Preserved In Tomato Sauce	Bekaa	
Lebanese Mousakaa (ready to eat)		
Pickled Eggplant with Spicy Filling (Makdous)	Bekaa	
Spicy Green Beans (ready to eat)	All over lebanon	
Stuffed Vine Leaves (ready to eat)	All over lebanon	
Vine Leaves In Brine	Bekaa	Forzol
HERBS		
Aniseed	Bekaa	
Basil	All over lebanon	
Camomile	Mount Lebanon	
Flavouring Mix	Nabatieh-South	BintJbeil
Hyssop	Mount Lebanon	
Laurel Leaves	Nabatieh-South	
Lebanese Tisane	Nabatieh-South-Mount Lebanon	
Mint	All over lebanon	
Oregano	Nabatieh-South	
Rosemary	All over lebanon	
Sage	All over lebanon>500m	
Sumac	All over lebanon	
Zaatar Mix (Oregano, Sumac, Sesame)	Nabatieh-South	Haiss
HONEY		
Honey / Mountain	Nabatieh-South-North-Mount Lebanon	
Honey / Oak	Nabatieh-South-North-Mount Lebanon	

Honey / Spring	Nabatieh-South-North-Mount Lebanon	
JAMS		
Apple Jam	Mount Lebanon-North	
Apricot Jam	Bekaa	Deir Al Ahmar
Cherry Jam	Bekaa	
Dried Fig Jam	Bekaa-Nabatieh-Exported	Deir Al Ahmar
Fresh Fig Jam	Bekaa-Nabatieh	
Grated Pumpkin Jam	Bekaa-South	
Mulberry Jam	Mount Lebanon-Bekaa	Deir Al Ahmar
Orange Blossom Jam	South-North(Coast)	
Peach Jam	Mount Lebanon-North	
Pear Jam	Mount Lebanon-North	
Prune Jam	Mount Lebanon	
Quince Jam	Mount Lebanon-North	
Quince Jelly	Mount Lebanon-North	
Raspberry Jam	Bekaa	KhorbetAnnafar
Rose Petal Jam	Bekaa-Mount Lebanon	
Strawberry Jam	All over Lebanon	
DAIRY PRODUCTS		
Labneh from Goat milk in Olive Oil	Bekaa	Aita al foukkar
Green Kishk In Olive Oil	Bekaa	Aita al foukkar
Shanklish from Goat Milk in Olive Oil	North	BeitChlala
MOLASSES		
Carob Molasses	South	AinEbel
Grape Molasses	Bekaa	
Pomegranate Molasses	North	Tekrit-Hayzouk
Whipped Grape Molasses	Bekaa	
OLIVE OIL		
Extra virgin Olive Oil	North-South-Nabatieh	
OLIVES		
Green Olives Filled with Almonds in Oil	North	
Green Olives Filled with Labneh in Oil	North	
Green Olives Filled with Red Pepper in Oil	North	
Green Olives Preserved in Brine	North-South-Nabatieh	

Green Olives Preserved in oil and lemon juice	North-South-Nabatieh	
Green Olives with Thyme in Oil	North	
PICKLES		
Mixed Pickles	Bekaa	
Pickled Cucumber	Bekaa	
Pickled Eggplant	Bekaa	
Pickled Green Tomato	Bekaa	
Pickled Wild Cucumber	Bekaa	
PRESERVES		
Apricot Halves in Light Syrup	Bekaa	
Bitter Orange Peel Cooked and Preserved in Syrup	South-North(Coast)	Ksaybeh
Dates Filled with Roasted Almonds Cooked and Preserved in Syrup	South -Exported	
Fruits(Cocktail)in Light Syrup	Mount Lebanon	
Peach Halves in Light Syrup	Mount Lebanon-North	Kfardebian
Pear Halves in Light Syrup	Mount Lebanon-North	
Pumpkin Pieces Cooked and Preserved in Syrup 400g	Bekaa-South	
Whole Apples Filled with Roasted Almonds preserved in Syrup 400g	Mount Lebanon-North	Kfardebian
Whole Eggplants Filled with Roasted Almonds Preserved in Syrup 400g	Bekaa	
Whole Figs Cooked and Preserved in Syrup 400g	Bekaa-Nabatieh	Jditta
Whole Mulberry preserved in mulberry juice	Mount Lebanon-North	Beit Al Fakess
SAUCES/PASTES		
Hot Sauce	North-Nabatieh	Hariss-BintJbeil
Mild Sauce	North-Nabatieh	Hariss-BintJbeil
Sun-Dried Tomato	Bekaa	Irsal
Tomato Paste	Mount Lebanon-Bekaa-Coast(Green House)	
Tomato Sauce with Spices	Mount Lebanon-Bekaa-Coast(Green House)	
SOAP		
Laurel Soap (1Piece ~100g)	Nabatieh	
Olive Oil Soap (1Piece ~160g)	Nabatieh-South-North	
SYRUPS		
Apricot Syrup	Bekaa	
Bitter Orange Syrup	South-North(Coast)	

Citrus Syrup	South-North(Coast)	
Mulberry Syrup	Mount Lebanon-Bekaa	
Rose Syrup	Bekaa-Mount Lebanon	
VINEGAR		
Apple Vinegar	Mount Lebanon-North	Kfardebian
Concentrated Sour Grape	Bekaa-Mount Lebanon	Fourzol-Kfardebian
Grape Vinegar	Bekaa	
COOKIES/BISCUITS		
Biscuits cooked with Carob Molasses	South	AinEbel
Salty Sesame Biscuits	South	Deir Qanon Ras Al Ain
Sweet Aniseed Cookies	South-Nabatieh	Deir Qanon Ras Al Ain-Arab Salim
Thyme Biscuits	South-Nabatieh	

* **Cooperatives selected based on three major criteria:**

- Active Cooperative
- with regular production
- Hygienic location
- Fully equipped
- Range of products (more than 10)

ANNEX C: LIST OF DONORS & NGO'S THAT SUPPORTED COOPERATIVES ACROSS ALL LEBANESE RURAL AREAS

ACDI/VOCA
ACS - Al-Shouf Cedar Society
ADR - Association for the Development of Rural Capacities
AEC - Arc En Ciel
AEP - Professional Mutual Aid Association
AFDC - Association for Forest Development & Conservation
Agence Espagnole de Cooperation Internationale et de developement (AECID)
Agence Francaise de Developpement AFD
AL-MAJMOUA - Lebanese Association for Development
AMEL - Amel Association International
AMIDEAST - America-Mideast Educational & Training Services Inc.
AMWAJ - "AMWAJ" of the Environment
ANERA - American Near East Refugee Aid
Australian Agency for International Development AusAID
C/L - Caritas Lebanon
Canadian International Development Agency CIDA
CD - Cooperation for Development
Centre Technologie Forestal De Catalunya (CTFC)
Council for Development and Reconstruction (CDR)
CRS - Catholic Relief Services
CRTD.A - Collective for Research & Training on Development - Action
DPNA - Development for People and Nature Assoc.
DRC - Danish Refugee Council
Embassies (Amercan-Italian-Mexican-Austalian-Japanese-German...)
European Union
FES - Friedrich - Ebert - Stiftung
FF - Fares Foundation
HF - Hariri Foundation
ISF - Imam Al-Sadr Foundation
JBDA - Jihad Al Binaa Foundation for Development
LDN - Lebanese Development Network
MECC - Middle East Council of Churches
MECTAT - Middle East Centre for the Transfer of Appropriate Technology
MF - Makhzoumi Foundation
Middle East Parttnership Initiative (MEPI)
MSL - Mouvement Social Libanais

PM - Pontifical Mission
RMF - Rene Moawad Foundation
SC/ - Save the Children Federation
SF - Safadi Foundation
Sherri Blair Foundation
Swedish International Development Cooperation Agency SIDA
Swiss Agency for Development and Co-operation SDC
United Nations :IFAD-UNDP-FAO-UNIFIL-UNV
USAID
World Bank
WRF - World Rehabilitation Fund, Inc.
WVL - World Vision Lebanon
YMCA - Young Men's Christian Association

ANNEX D: TOP 12 COOPERATIVES WITH THE MOST POTENTIAL AND READINESS FOR DEVELOPMENT

#	Location	Type	Official Name of Cooperative in Arabic
1	Deir el Ahmar	Women coop	-الجمعية التعاونية لتصنيع المنتجات الزراعية في دير الأحمر جنى الأيادي
2	Fourzol	Women coop	الجمعية التعاونية الإنتاجية للمرأة الريفية
3	Mhaydseh	Mixed coop	وادي -الجمعية التعاونية لتصنيع الإنتاج الزراعي وتعليبه العرايش
4	Aita Al Fokhar	Women coop	عين العريش -الجمعية التعاونية لتصنيع المنتجات الزراعية في عين الفخار
Bekaa Total		4	
5	Bater	Women coop	جنى البساتين- الجمعية التعاونية الزراعية الإنتاجية
6	Kfardebian	Women coop	الأطاب -الجمعية التعاونية لسيدات كفرديبان
7	Lehfed	Women coop	لحقد الخضراء -الجمعية التعاونية الإنتاجية الزراعية لسيدات لحقد
Mount Lebanon Total		3	
8	Beit Shelala	Women coop	الجمعية التعاونية لتصنيع الإنتاج الزراعي "الشلال" كفرحدا -والحيواني في بساتين العصي
North Total		1	
9	Deir Qanoun Ras el Ain	coop	مواسم الضيعة -الجمعية التعاونية للتصنيع والإنتاج الزراعي في دير قانون رأس العين مواسم الضيعة
South Total		1	

10	Arabsalim	coop	الجمعية التعاونية للإنتاج والتصنيع الزراعي في "زودة الضيعة" عربصاليم
11	Hariss	coop	الجمعية التعاونية للغذاء الريفي في حاريس "العماد"
12	Kfarsyr	coop	مرج النبعة -تعاونية الإنتاج والتصنيع الزراعي في كفرصير
Nabatiyeh Total		3	
Total		12	

ANNEX E: ANALYSIS OF OTHER PROCESSED FOODS

CHOCOLATE PRODUCTS

Chocolate products belong to ISIC class 1040.

Product Definition

It is the generic name for the homogenous products complying with the descriptions below. It is obtained by an adequate manufacturing process from cocoa materials which may be combined with milk products, sugars and/or sweeteners, and other additives

Chocolate (in some regions also named *bittersweet chocolate*, *semi-sweet chocolate*, *dark chocolate* or "*chocolat fondant*") shall contain, on a dry matter basis, not less than 35 percent total cocoa solids, of which not less than 18 percent shall be cocoa butter and not less than 14 percent fat-free cocoa solids.

Sweet Chocolate shall contain, on a dry matter basis, not less than 30 percent total cocoa solids, of which at least 18 percent shall be cocoa butter and at least 12 percent fat-free cocoa solids.

Couverture Chocolate shall contain, on a dry matter basis, not less than 35 percent total cocoa solids of which not less than 31 percent shall be cocoa butter and not less than 2.5 percent of fat-free cocoa solids.

Milk Chocolate shall contain, on a dry matter basis, not less than 25 percent cocoa solids (including a minimum of 2.5 percent fat-free cocoa solids) and a specified minimum of milk solids between 12 percent and 14 percent (including a minimum of milk fat between 2.5 percent and 3.5 percent). The minimum content for milk solids and milk fat shall be applied by the authority having jurisdiction in accordance with applicable legislation. "Milk solids" refers to the addition of milk ingredients in their natural proportions, except that milk fat may be added, or removed.

"*Gianduja*" (or one of the derivatives of the word "*Gianduja*") *Chocolate* is the product obtained, firstly, from chocolate having a minimum total dry cocoa solids content of 32 percent, including a minimum dry non-fat cocoa solids content of 8 percent, and, secondly, from finely ground hazelnuts such that the product contains not less than 20 percent and not more than 40 percent of hazelnuts.

Chocolate types:

Filled Chocolate is a product covered by a coating of one or more of the Chocolates defined above, the center of which is clearly distinct, through its composition, from the external coating. Filled Chocolate

does not include Flour Confectionery, Pastry, Biscuit or Ice Cream products. The chocolate part of the coating must make up at least 25 percent of the total weight of the product concerned

A Chocolate or Praline designates the product in a single mouthful size, where the amount of the chocolate component shall not be less than 25 percent of the total weight of the product. The product shall consist of either filled chocolate or a single or combination of the chocolates

Compound chocolate **Compound Chocolate** also known as chocolate coating is a cocoa product containing vegetable fats in the place of cocoa butter. The vegetable fats commonly used are often “hard” fats or fats semi-solid at room temperature, such as coconut oil and palm kernel oil. One of the chief benefits of compound chocolate is that it can deliver cocoa flavor at a greatly reduced cost, due to the fact that vegetable fats are less expensive than cocoa butter. In most countries however compound chocolate cannot be labeled as chocolate but rather chocolate flavored or chocolate like.

Chocolate is a large and important industrial sector in Lebanon mainly composed of small and medium enterprises; the chocolate confectionary relies on the import of chocolate butter, cacao, cocoa butter, and cocoa mass, just as most chocolate industries in the world rely on the import of cocoa bean ingredients. The Lebanese industry is skilled in this segment and is specialized in both high commercial quality praline chocolate rather than industrial mass production chocolate bars. There are over 9 medium sized factories registered in the Association of Lebanese industrialists (ALI) and several others smaller establishments and “traiteurs” who produce premium quality products. Some industrial establishments have grown large and opened franchises in Lebanon and the region (about 140 in 35 countries).

Actors

- Small and medium processors.
- Suppliers of cocoa powder, cocoa butter, vegetable fats,
- Markets
- Suppliers for dried fruits, almonds, nuts.
- Local distributors; wholesalers; processors/distributors/exporters.

Production and processing technology

The chocolate processing industry in Lebanon is composed of very small low investment producers (almost artisanal) and medium sized industries relatively mechanized where a higher investment is required; some of the medium size producers have established a vertically integrated set-up which includes the production of marketing related accessories such as packaging, silverware, outlets and so on. There are basically two levels of production; those who start from prefabricated tablets, modify them and remold the chocolate, and those who start from basic chocolate ingredients such as cocoa powder, cocoa liquor and cocoa butter. The second type represents larger entities and more diversified producers.

The fabrication of chocolate starts with a mixing operation, fine grinding, conching, tempering and molding. All these operations require a precise monitoring of temperatures as well as a high level of hygiene.

The quality of the final product shall depend on the quality of ingredients used (which are imported), the level of the equipment used (and this varies from factory to factory) and last but not least on the skills of the producers and operators.

The added value on the final product shall depend on whether it has a certain USP; this USP can be in its presentation, or in its decoration or in its packaging or in its assortment and so on. This is where the skill of the producer intervenes. History has shown, at least in the Lebanese market, that Lebanese producers cannot compete in chocolate products with mass production tablets where strong international players exist.

Compound chocolate on the other hand is gaining ground through the production of chocolate coatings for cereal bars, ice cream and biscuits.

MARKETS

Domestic Market

The domestic market is highly served by local production in spite of the fact that Lebanon imports about 4300MT.

Export Market:

In 2011 Lebanon exported about 2,500 MT of certain types of chocolate products having a declared sales value of about \$18 Million. The growth of exports between 2008 and 2011 on chocolate items of all types varied between 50 percent and 300 percent. Despite this, the industry is challenged by its high costs of production, especially labor and energy costs. The major export destinations are GCC countries. (KSA, Kuwait, Qatar, and Jordan).

Tariff Number	Description	2011 Imp Value (USD 000)	2008 Imp Value (USD 000)	percent increase by value (base 2008)	2011 Exp Value (USD 000)	2008 Exp Value (USD 000)	percent increase by value (base 2008)
1806	Sub sector: Cocoa and Chocolate products	63,651	49,127		34959	19196	
				30 percent			82 percent
18.06.10.00	Cocoa Powder (Containing Added Sugar or Other Sweetening Matter)	336	328	2 percent	5,259	1,094	381 percent
18.06.20.00	Other preparations in blocks, slabs or bars weighing more than 2 kg or in liquid, paste, powder, granular or other bulk form in containers or immediate packings, of a content exceeding 2 kg	8,603	6,523	32 percent	1,327	304	337 percent
18.06.31.00	Food Preparations Containing Cocoa (In Block, Slab, Bar Form; Filled)	23,654	23,303	2 percent	9,389	6,287	49 percent
18.06.32.00	Food Preparations	9,700	4,574	112 percent	427	98	336 percent

	Containing Cocoa (In Block, Slab, Bar Form; Not Filled)						
18.06.90.00	Other	21,358	14,398	48 percent	18,557	11,413	63 percent

The export market for chocolate is limited to a specific type of chocolate segment - high value boxed chocolate. The market has been growing for the past 3 to 4 years at a fast pace. Quantities almost tripled between 2009 and 2011 reaching about 6,000 MT. The importing countries are regional and Gulf countries such as Jordan, KSA, Qatar, and Syria.

The importance of the chocolate industry in exports is that it is a steadily growing industry meaning that it is appreciated by consumers and that it fits the image of Lebanese Cuisine. Some Lebanese chocolate products and brands such as “Patchi”, ”Ethel”, ”Chantilly”, and others are promising candidates for franchising, both in the Lebanese market and in neighboring countries and the GCC.

Having said this, and considering that Chocolate products require controlled climate shipments and are usually shipped by air, there could be synergy with high end ready meals or other types of confectionaries.

LIVCD STRATEGY

- Upgrade processors to comply with international food safety standards.
- Establish linkages with other agro-industry sectors; mainly fruit and nut processors.
- Include chocolate products in the overall export marketing strategy for the Lebanese food products.
- Provide access to regional markets such as GCC, Iraq, Egypt possibly North African markets.

TAHINA

Belonging to ISIC codes no. 1079 and 1040 respectively.

Product Definition

Tahini (Tehina) is a light yellow liquid obtained from the peeling, roasting and grinding of sesame seed. It should contain a minimum of 45 percent fat and a moisture content not exceeding 1.5 percent.

Tahini is widely used in Lebanese cuisine; it is manufactured by over 20 local factories registered in the Association of Lebanese industrialists and a dozen small ones located in various regions of Lebanon.

Tahini is produced for the local market and for export. Production size is very roughly estimated between 10,000 to 12,000MT annually.

Actors

Small and medium sized processors: These are tahini mills with a production capacity ranking from 500kg a day to 10Mt tons per day. They are usually family businesses except for a couple of factories which belong to local corporations.

Sesame seed importers: These are commodity traders buying sesame in large lots mainly from Sudan other African countries such as Ethiopia and from India. They import sesame seeds for tahini producers but also for bakeries.

Wholesalers and distributors; producers/distributors/Exporters

MARKETS

Domestic Market

Tahini produced locally is sold to three market segments:

Retail, where it is sold in plastic packs of 500g and 1000g;

HoReCa, where it is sold to restaurants of caterers or even hotels, in buckets or tins of 18kg each; and

Industry where it is sold in drums of 200kgs or sometimes in stainless steel reservoirs. As a matter of fact, ninety percent of the canning industry has installed its own Tahini production units. The total quantities produced can be roughly estimated at 6 or 7 thousand tons annually having a market value of about USD 13,000,000 which can vary depending on the price of the sesame seed. 65 percent of tahini is consumed locally and 35 percent is exported.

Imports of tahini are practically nil as Lebanese quality is superior to tahini produced outside Lebanon. Tahini factories are distributed in all regions of Lebanon. The major concerns for the local consumer are: possible addition of coloring agent such as titanium dioxide as a whitening agent; and 2) the presence of pathogenic bacteria such as Salmonella. Both issues are prohibited by law and are being monitored by the relevant authorities.

Export Market:

Tahina is an important product for export, about 35 percent of quantities produced are exported. Some companies export 70 percent of their production and others 30 percent; while small outfits tend to sell only to the local market. Lebanese tahini is relatively expensive if compared to tahini produced elsewhere but is exported to all continents, and specifically to the ethnic markets in the USA, EU, Australia and the GCC.

Exports are packaged in includes 908g as well as 454g plastic pot packaging, as well as 18 kg buckets. The buckets are used by caterers as well as re-packers in the USA and Canada. Despite the fact that tahini mills exist in the US and in many Gulf countries, they are not capable of matching the characteristics of the Lebanese tahini in terms of taste, color and consistency.

Even though Tahini is produced in regional countries such as Turkey, Syria, Jordan, Egypt and Palestine, and some Gulf countries, Lebanon has a unique position in the sense that it is largest producer of stone ground tahini and the largest exporter; the quality of tahina in terms of texture, color and taste is superior in Lebanon as most industries utilize best quality sesame seed.

PRODUCTION

Lebanese Tahina is highly recognized regionally because of its high quality which is attained by the traditional processing manner of stone grinding; There is in Lebanon over 20 factories with a capacity exceeding 6000 MT of Tahina annually; 95 percent of the Tahina producers in Lebanon utilize stone grinding as a method for production while 5 percent depend only on mechanized systems. Stone grinding is a slow process and requires regular and extensive maintenance of the stones; as a result several

factories in Lebanon have shifted to a more mechanized grinding which produces a less premium quality in terms of color and taste.;

30-40 percent of the companies combine stone and mechanical grinding. Since Tahina after production is stored under non-controlled conditions which could reach 35°C to 45°C, and since it is typically consumed fresh from the jars without further heating, and since it is not vacuum packed or by itself is not acidic product, Tahini has to be free from any pathogenic bacteria upon packaging. Tahini production is a sensitive but a relatively safe production system, however the raw sesame itself need to be treated with attention otherwise the risk of contamination shall increase significantly. Adhering to international food safety standards during production is also critical to avoid contamination of the finished product. The fact that Lebanese Tahini has had incidents where salmonella was detected has reduced the quantities for export, especially to the USA. Since then however, the Syndicate of Lebanese Industrialists (SLFI) along with the Lebanese government have taken steps to insure the safety of Lebanese Tahini.

HALAWA OR HALAWA TEHENIA

‘Halwa tehenia’ designates a heat-processed food product made of Tahina, natural sugars and other ingredients. Its texture is consistent or crumbly (Fibrous Halawa) .Halawa should not contain less than 25 percent fat coming from tahina and has a moisture content not exceeding 2.5 percent.

ACTORS

Tahina and halawa small and medium sized processors: These are at ninety eight percent tahini producers who also produce halawa.

Sugar importers and Importers of soapwort extract: A substance extracted from the bark, leaves or roots of soapwort (*Saponaria officinalis*). It is either called soapwort or saponin.

Wholesalers and distributors; producers/distributors/Exporters.

MARKETS

Domestic markets

Lebanon consumes large quantities of halawa. It is considered as the sweet of low income brackets of the population. The quantities of halawa produced is equivalent to about 15-20 percent of the tahini market .Its market value exceeds \$4,000,000 and is sold in many variants; plain; with pistachios; with chocolate and with almonds. The local market share varies between 65 and 70 percent. Halawa is still packed in traditional round PE boxes of 1000g and 500g sizes. Recently some producers have replaced the round shaped plastic boxes with thermoformed trays.

Export markets

Halawa and its variants constitute an important export product to several countries on all continents where the Lebanese diaspora is present (about 35 percent of total production). Those countries include the GCC, North America, EU, Australia and South America. Halawa is produced and consumed all over the eastern Mediterranean region from Egypt to Turkey and Greece. Lebanese Halawa exported in spite of it being produced in numerous countries.

PRODUCTION

Halawa production depends on imported raw materials. It requires sesame seed from which tahini is produced and sugar which constitutes 50 percent of the Halawa ingredients. Halawa production in

Lebanon is labor intensive, as it depends on primitive and low capacity equipment and the skills of the “Mouallem” or the halawa maker. The production steps are as follows:

- 1- Cooking and aerating the sugar until it becomes a white liquid.
- 2- Mixing sugar with Tahini and layering it until it becomes a thick mass.
- 3- Filling and weighing the halawa boxes manually one by one while melding the halwa slightly prior to filling.
- 4- Closing and sealing the boxes.

In countries such as Egypt, Turkey and Greece more mechanization has been introduced to the manufacture of halawa which renders it more cost effective and a bit less labour intensive. However according to Lebanese quality standards, mechanization does not meet the halawa original texture and taste.

LIVCD STRATEGY FOR TAHINA AND HALAWA.

The main constraint of the Tahina industry is its dependence on sesame from Sudan. The price of the commodity determines the final price of Tahina. Another constraint is the difficulty of achieving hygienic conditions using a grinding stone. Yet many Lebanese companies were able overcome this challenge by improving and tightening production controls. The LIVCD input should focus on the following:

- Upgrade processors to comply with international food safety standards.
- Include tahina and halawa in the overall export marketing strategy for Lebanese food products.
- Provide access to regional markets such as GCC, Iraq, Egypt and possibly North African markets

GROUND COFFEE

It belongs to ISISC rev 4 Class 1079

PRODUCT DEFINITION

Ground Coffee: are roasted coffee beans (individual or blended) which have been prepared for brewing by being crushed or ground. When hot water is passed through the ground coffee, it extracts compounds within the coffee beans, resulting in a brewed cup of coffee. There are a number of different ways to process coffee for brewing, and it is important to match grinding method to brewing method to ensure that coffee comes out with good flavor and high quality. Lebanese coffee is the Turkish coffee type which leaves grounds at the bottom of the cup or coffee pot after preparation. Different roasts and beans yield very different flavors. When preparing ground coffee, people can blend beans from different locations if they want to create a customized flavor.

In Lebanon the major source for coffee is Brazil and sometimes other Latin American countries. The main varieties are Arabica and Robusta.

About 10 medium-sized ground roasted coffee producers exist and are doing well. Many factories are at present equipped with modern equipment and testing laboratories. Lebanese ground coffee is mainly a domestic market product.

Actors

Medium and large processors. These are companies importing coffee beans from various countries directly or through local traders, roasting it, grinding it, packing and marketing it under several brands.

MARKETS

Domestic markets

The average consumption of coffee per capita in Lebanon was estimated in 2008 at 4.8 kg annually for a total of 20,000MT. World production is about 8 million tons and the average consumption per capita worldwide is 1.3 kg. The marketing of coffee in Lebanon has a long history; modern packaging techniques have been adopted as well as modern labeling and designs have been utilized. The largest segment by far is the Turkish coffee type, but recently several producers have tried to introduce espresso type product with special coffee machines.

Export markets

Exporting coffee is a relatively new business in Lebanon. Recently exports have taken place to countries such as GCC and Jordan, and to ethnic markets in Canada and the US. The trend is an increasing one. Various types of coffee and coffee based products are exported and reached 2,200MT in 2011 for a value of \$16 million. Coffee is mainly packaged in vacuum flexible packaging bags or bags injected with gas to reduce the oxygen and Co₂ effect on the quality of the product.

Lebanese type coffee has been successfully exported to eastern European countries and is quite popular with the Lebanese diaspora in GCC countries, Jordan, Syria as well as western markets such as the USA.

Production

Coffee production is a big business if we are to consider both local and export markets. It developed from a semi-automatic roaster and grinder to fully automatic continuous roasting lines. All producers start from imported coffee beans. At the beginning Lebanese producers used cheap quality Brazilian beans (type Robusta) but at present successful producers are blending different types of beans to improve taste (Arabica). The major coffee bean supplier is Brazil but a lot is imported from Colombia.

A lot of effort has been applied to packaging of ground coffee into flexible vacuum bags or modified atmosphere products.

Some coffee factories have moved into espresso technology and have also invested heavily into developing coffee dispensers not only for espresso but also for Lebanese type coffee.

A second effort is being done in the marketing of coffee through the development of sophisticated design bags as well as dispenser coffee machines.

LIVCD Strategy

Considering the relative success the sector has as well as its ability to promote Lebanese exports the strategy of LIVCD shall be to include Lebanese coffee in the overall export marketing strategy for the Lebanese food products.

SPICES AND HERBS

Spices and herbs belong to ISISC rev 4 Class 1079

PRODUCT DEFINITION

Spices and herbs are the aromatic parts of the leaves, flowers or other parts of plants used to impart an aroma or taste to foods.

There are about 7 major industries in Lebanon processing and packing herbs, spices and spice mixes. Most of them are known brands which are sold both locally and abroad.

Except for a small quantity of thyme, sage and chamomile most of the dried herbs are imported for domestic use or even re-packed for exports. Both domestic and export markets are large.

ACTORS

Growers/collectors/dryers of specific local herbs: These are either collectors and dryers of specific wild herbs found in Lebanon such as thyme and sage or cultivators of non-wild thyme, oregano, mint, coriander, basil and mouloukhieh leaves, and others.

Small and medium processors; These buy raw spices from local or international suppliers, clean, sort, grind, and pack it in a manner to preserve its flavor and microbial quality. In many cases spices are formulated into spice mixes having a specific culinary function such as ‘kebbe Spice’, ‘Chicken spice’, and so on.

Importers of raw spices: These are commodity importers and resellers of various raw spices in large and small quantities. They supply spices from countries and regions such as Egypt, India, Sri Lanka, China, Turkey, South America, among others.

Wholesalers; local Distributors; local Producers/distributors/exporters.

MARKETS

Domestic markets

Lebanon imports about \$10,000,000 worth of different types of herbs and spices; mainly single whole ingredients which are then fumigated and ground. The spices are processed and packed in individual consumer units varying between 50g and 200g. The cheaper ones are usually packed in transparent plastic sachets of 50g each. Recently a marketing upgrade of certain brands introduced the labeled glass vials similar to European products such as ‘Ducros’ and ‘McCormick’. Large sizes have also been introduced for food service companies.

The success stories of certain brands are in the preparation of mixes on which they could add higher margins. Interesting examples are tabboule mix, kebbe mix, roasted chicken mix, and chawarma mix. Estimated consumption of spices and herbs in Lebanon is 3,650 tons/year at a value of \$18.25 Million.

Export Markets

The export market for spices is significant. In 2011 it amounted to about 700MT per year at a value of about \$2.3 million. Exports were traded to GCC countries, Canada, Germany, USA, Australia and some African countries.

The leverage of the Lebanese spice industry is in the mixes and regionally recognized Lebanese cuisine. It constitutes about 70 percent of exports. Most of the mixes correspond to Lebanese kitchen recipes; hence spices are actually an integrated part of the food product mix exported under the Lebanese cuisine umbrella, and which is highly sought after by Lebanese and Arabs living abroad and to Arab countries that appreciate Lebanese cuisine.

PRODUCTION

A major constraint in the grinding and packing of spices is their contamination from the source. With the present safety conditions imposed in many of the importing countries the industry is faced with the challenge for finding a way to reduce contamination without altering the spice quality. Few of the major spice producers have automated lines. They rely on semi-automatic equipment. The lines consist of basic blenders and weighers for hand filling. Recently some companies have significantly upgraded the hygiene as well as the mixing and packing capacity of their lines. Brands such as Gardenia and Second House Products have obtained ISO22000 on their spice production unit

The processing of spices does not require significant investment. It is mainly related to the skills of the producer, the flexibility of the packer to establish a diversified range, the taste of the spices and on hygiene.

Considering that Lebanese producers do not grow their own spices, the issue of microbial loads in the spice is becoming a hurdle for exports to developed countries. Countries such as Turkey have resolved the issue by establishing expensive spice sterilizing units.

LIVCD Strategy

The fact that Lebanese producers have managed to dominate the local market as well as penetrate some difficult foreign markets, even though Lebanon is not a spice producer, is due to: 1) The flexibility of Lebanese producers to establish a large range requiring outsourcing and knowledge of various types and origin of spices; 2) the fact that Lebanon has a well-established and internationally appreciated cuisine; and 3) the Lebanese abroad who welcome the taste of their original spice mixes. The strategy shall focus on:

- Upgrade processors to comply with international food safety standards.
- Include Lebanese spice mixes in the overall export marketing strategy for the Lebanese food products.
- Support a PPP venture for the sterilization of raw spices.

ROASTED NUTS

Belonging to ISIC Rev.4 Class 1030

PRODUCT DEFINITION

Roasted nuts are various types of nuts that have undergone roasting using indirect heat at high temperatures with or without salting in various manners to preserve them by reducing their moisture content and enhancing their flavor. It covers almonds, pistachios, pumpkin seeds, hazelnuts, walnuts, peanuts, cashew, and so on.

ACTORS

Small and medium nut processors; These are small and medium sized roasters located all over Lebanon that buy from local traders process them.

Additional actors of the nut value chain include: traders of nut products, wholesalers, local distributors, Processors, distributors, and exporters.

MARKETS

Domestic markets

Lebanon is one of the largest consumers of edible nuts in the Mediterranean region. Estimated consumption as per 2009 FAO statistics is equivalent to 67 MT of tree nuts, 63 percent of which are imported. Roasted nuts constitute a large portion of the consumed nuts. Roasted nuts in Lebanon are mainly sold at roasters or supermarkets with special counters. A large percentage is now being sold pre-packed in supermarkets.

There are about a dozen roasteries in Lebanon with a good branding image.

Export markets

Lebanon exports about 10,000MT of roasted nut annually having a value of about \$47 Million. Most of it is mixed nuts as Lebanon is quite famous for such items. Importing countries are EU countries, GCC countries, Iraq, USA, and some African countries.

PRODUCTION

Only recently some roasters have introduced automation in their roasting operations; have modified the traditional roasting systems which are labor intensive and of low productivity and replaced them with the hot air type of roasting. Lebanon produces thousands of tons of roasted nuts that are packed in two ways: 1) Bulk pack to be re-sold at outlets; and 2) Flexible PE aluminum film bags having a tight hermetic seal and gas injection to avoid oxidation and moisture.

LIVCD STRATEGY

Roasted nuts exist everywhere, but the Lebanese are specialized in this business and are producing tasty products. The main constraint is the nuts are mainly imported. None the less, Lebanon achieves a high level of added value from the roasting and packing of nuts LIVCD strategy should focus on the following:

- Support in the upgrade of the food safety system in the roasters.
- Support the development of new packaging ideas or concepts for the sector without altering the range and quality.
- Create linkages between nuts growers and roasters. Support growers in the optimization of their post-harvest techniques. Introduce roasted nuts within the overall export strategy designated by FIS.

QUICK FROZEN VEGETABLES

Belong to the ISISC Rev 4 class 1030

PRODUCT DEFINITION

Quick frozen vegetables are the prepared from fresh, clean, sound, whole, sometimes immature vegetable been washed, sufficiently blanched to ensure adequate stability of color and flavor during

normal marketing cycles and which conform to the characteristics of the relevant vegetable species. The product is subject to a freezing process in appropriate equipment carried out in such a way that the range of temperature of maximum crystallization is passed quickly. The quick freezing process shall not be regarded as complete unless and until the product temperature has reached -18°C (0°F) at the thermal center after thermal stabilization. The recognized practice of repacking quick frozen products under controlled conditions is permitted.

Quick frozen vegetables are rapidly growing as a food segment and in some areas replacing canned vegetables, such as green peas, artichoke, okra, and in the green leaves segments (such as mouloukhia , spinach and coriander.

Quick freezing in Lebanon is still at an early stage with almost no apparent known factory except in the field of frozen French fries). The main reason is the unavailability of consistent quality fresh vegetables suitable for freezing and significant imports.

ACTORS

Growers of fresh vegetables; Wholesale market; importers in the case of potatoes; small and medium sized processors.

MARKETS

Domestic market

At present 98 percent of the frozen vegetables are imported from countries such as Egypt, France, Belgium, USA, and Eastern Europe. Imports in 2011 were about 3000MT with a value of about \$5 million. Local consumption is growing. In many cases consumers prefer them to canned vegetables and sometimes even fresh vegetables such in the case of pre-fried potatoes or cut carrots, and the frozen pre-fries potatoes.

Export Market

The top 5 importing countries for frozen vegetables in 2011 are Iraq (48 percent), UAE (26 percent), Jordan (11 percent), KSA (6 percent) and Kuwait (3 percent). The trend is stable. There was a big increase in 2009 then a decrease in 2012. Though the total value of exports increased slightly. A portion of consists of imports that are re-exported under a Lebanese brand. This applies to frozen peas, okra, and artichokes. The products are sold to local distribution companies or Lebanese distribution companies located in the targeted export market.

PRODUCTION

One item that is successfully produced in Lebanon is frozen cut potatoes in the form of pre-cooked French Fries and potato wedges. This constitutes an important import replacement to compete with international brands. It has also gained ground through the establishment of international fast food chains such as McDonald's, Burger King, Hardees, and others. The processing technology used is advanced and produces a good quality product assuming that the good quality raw materials are available.

Processors still count on imported Egyptian potatoes to meet their cost expectations and remain competitive, especially that frozen frites require a special type of potato to obtain good results. These

processors also utilize locally grown potatoes when the agricultural calendar does not permit imports and when the right quality is available.

Other processors are small and rely on batch freezing; they supply a small segment of the market and the majority freezes vegetables, such as frozen roasted eggplant for the industry. Frozen roasted eggplant is used for canning of roasted eggplant and Babaghanouge.

LIVCD STRATEGY

The added value on quick frozen products is significant and the domestic market as well export markets exist. However it is difficult to replace imports due to 3 main reasons:

- Most locally grown varieties of peas and artichokes are not suitable for freezing.
- High cost of IQF freezing which is closely linked to economies of scale.
- Cost of production and processing is more expensive than that in competing countries.
- Freezing, which is required for long storage, consumes lots of expensive energy.

None the less, Lebanon a producer of fruits and vegetables and consumers those items in quick frozen form. Quick freezing if it succeeds can provide a support to the fruit and vegetable value chains. The LIVCD strategy will :

- Support linkages between growers and processors in those products that are consumed in large amounts locally and where local production for the fresh market is active.
- Support PPP agreements on a vertically integrated quick frozen unit for fruits and vegetables to replace imports in both frozen and canned products and possibly target some export markets.

FRUIT JUICES FROM FRESH FRUIT

PRODUCT DEFINITION

Juices are products produced from the extraction of various fruits such as strawberry, orange apple, grapefruit, and tropical fruits, and not from concentrate.

Fruit juices can be produced from 100 percent fresh fruit or can be made from fruit concentrate. The Lebanese juice market is highly dominated by the “made from concentrate” juices or nectars. There is however a strong niche for fresh juices that is mostly limited to the local market due to its relatively short shelf life, the need for chilled storage and its relatively high cost. Smoothies based on fresh fruits is a new trend and is associated with HORECA businesses. The range of smoothies usually focuses on citrus products and apples. Other types are becoming more common such as strawberries, bananas, and avocados.

ACTORS

Small and medium sized processors; responsible for the purchase and processing of fruits such as citrus fruits, apple, red berries, and so on.

Fresh fruit growers; Local distributors; processors/distributors/exporters.

MARKETS

Domestic market

Fresh juices are processed by a few numbers of processors, utilizing relatively low capacity machinery. The major processor is the “Balkis” brand followed by several small producers. The market is confined to chilled plastic bottles and pasteurized 1 liter Tetrapack cartons stored in a refrigerator.

Export markets

Still not well developed as a result of a short shelf life.

PRODUCTION

The largest constraint to producing juice locally, is the lack of consistent availability of fruits throughout the year at prices that make it more competitive for local processors to compete with imported concentrates. Balkis, which is the only fresh citrus juice processor, has its own orchard that supplies it with juice-grade citrus. In addition, the company buys from other orchards depending on availability. During peak season when prices are low, Balkis purchases large volumes and stores them as fresh or as frozen juice. This however adds cost which further reduces competitiveness.

LIVCD STRATEGY

The immediate potential for the processed fresh fruit business is in the food service segment, with a potential for industrial production if fresh fruit cultivation becomes industry oriented where the right varieties are planted and at large enough volumes. The most likely candidates are apples and citrus. The marketing of such products shall be limited to nearby. The proposed strategy of LIVCD is:

- Establish linkages between fruit growers and fruit juice from fresh product.
- Introduce the fresh fruit juices within the export marketing strategy for Lebanese food products.
- Provide technical support for the extension of shelf life of juices from fresh juice.
- Support in the development of high added value products such as fruit smoothies.

GRAPE WINE

Belonging to the ISIC REV 4 Class

PRODUCT DEFINITION

The product obtained exclusively from the total or partial alcoholic fermentation of fresh grapes, whether or not crushed. There are different varieties of grape wine. The wine industry in Lebanon is flourishing. The Bekaa valley with its moderate and relatively dry climate and its sunny skies is an ideal area for the cultivation of wine grape varieties. However wine grapes are cultivated in other areas in the north, south and Jbeil. There are 18 major wine producers operating in different parts of Lebanon out a total of 40 wineries with at least four or five producers with international outreach. In 1991 there were only 4 wineries operating in Lebanon. Lebanese wines have an important potential locally and in export countries because of its quality. In view of the high costs of production, Lebanese wine producers have kept away from the low value table wine market and focused mainly on high quality wines. The wine industry is also important for Lebanon’s touristic development as well as Lebanon’s image as a country with high quality agricultural products.

ACTORS

Small and medium sized wine producers: There are of two types. Those who buy their grapes from the market or from growers and those that have their own vineyards. The latter constitute the majority and are usually the ones leading the market.

Grape growers: Most of the growers dealing with wine processors work on a contract basis to deliver the right quantity and quality.

Bottle producers/importers: Most wine bottles are imported except for certain brands that are able to order large quantities from the local producer.

Cork importers: supply cork to wine industry.

Other actors include: Local distributors, producers, distributors, and exporters.

MARKETS

Domestic markets

According to the Union Vinicole Du Liban (UVL), Lebanon produces over 7 million bottles of wine from grapes planted over an area of 2,000 Hectares. 50 percent of the market is dominated by two major brands; however other brands are also gaining ground. Local producers estimate the consumption of wine to be around 1.2 liters per capita or about 4 million bottles with local wines constituting about 80 percent.

EXPORT MARKETS

Lebanese wine is well appreciated in export markets; it is mainly limited to good quality wine and its quantities represent about 30 percent to 40 percent of local production, a good achievement considering that several of the wine markets targeted are themselves very large wine producers. Quantities exported in 2011 reached 2,000,000 liters with a value of to about \$12 Million. The major importing countries are the UK (24 percent), France (17 percent), USA(6 percent), Canada(5 percent) and UAE (5 percent). Such new markets as Russia and Eastern European countries are being tested by Lebanese producers.

PRODUCTION

Lebanon is the largest wine producer in the region. It is well acknowledged by wine specialists that the climate of the Lebanese Bekaa Valley is suitable for wine grapes. Many wineries have succeeded in creating a vertically integrated business with vineyards and wine cellars as well as distribution companies locally and abroad. Lebanon does not have any indigenous red grapes but rather cultivates international varieties such as Cinsault, Grenache, Carignan, Cabernet Sauvignon, Syrah, and Merlot. White grapes are indigenous such as Obeide and Marwah.

Most of the famous wineries rely on foreign (French) wine professional to manage their production.

LIVCD STRATEGY

Lebanese wines are a success story in terms of exports; they provide a good image of Lebanese food and beverage production and have good market access in the west. Associating Lebanese food products with Lebanese wine can contribute to the upgrade of Lebanese food in specific markets. Hence LIVCD strategy will include Lebanese Wine products in the overall export marketing strategy for the Lebanese food products.
