

E 11  
UNI  
433

15-77100  
*Pre*  
*Cherney*

Republic of Lebanon  
Office of the Minister of State for Administrative Reform  
Center for Public Sector Projects and Studies  
(C.P.S.P.S.)

ESOB/AG/72/1  
FEBRUARY 1972  
PROVISIONAL

UNITED NATIONS ECONOMIC AND SOCIAL OFFICE IN BEIRUT

الجمهورية اللبنانية  
مكتب وزير الدولة لشؤون التنمية الإدارية  
مركز مشاريع ودراسات القطاع العام



GROWTH OF LEBANESE AGRICULTURE:

DEVELOPMENT PROBLEMS  
AND  
POLICY ISSUES

MFN = 736

E11  
UNI  
433

Contents

	<u>Page</u>
INTRODUCTION.....	10
I. GROWTH OF THE ECONOMY .....	
A. <u>Growth</u> .....	
B. <u>Growth of the agricultural sector</u> .....	17
C. <u>Growth of the agricultural sector of Lebanon compared to         various countries in the region</u> .....	21
II. AGRICULTURAL RESOURCES AND THEIR UTILIZATION.....	25
A. <u>Land use and land tenure</u> .....	25
1. <u>Land use</u> .....	25
2. <u>Land tenure, size and fragmentation of farms</u> .....	29
B. <u>Irrigation</u> .....	32
C. <u>Agricultural machinery</u> .....	36
D. <u>Fertilizers and insecticides</u> .....	40
E. <u>Labour force</u> .....	41
III. AGRICULTURAL INSTITUTIONS AND ADMINISTRATION.....	45
A. <u>The cooperative movement</u> .....	45
B. <u>Agricultural credit</u> .....	47
C. <u>Agricultural administration, agricultural policy and         agricultural development planning</u> .....	49
1. <u>Agricultural administration</u> .....	49
2. <u>Agricultural policy</u> .....	51
3. <u>Agricultural development planning</u> .....	52
D. <u>Agricultural Extension and Education</u> .....	54
1. <u>Agricultural extension</u> .....	54
2. <u>Agricultural education</u> .....	55
IV. AGRICULTURAL PRODUCTION.....	56
A. <u>Crop production</u> .....	56
B. <u>Livestock production</u> .....	63
1. <u>Poultry industry</u> .....	66
2. <u>Red meat production</u> .....	75
3. <u>Milk production</u> .....	79
C. <u>Spatial distribution of agricultural production</u> .....	82

/...

Contents (continued)

Page

D. Some possibilities for the processing of agricultural produce..... 85

1. Citrus fruit juices..... 85

2. Industrial use of grapes..... 85

3. Dehydration of onions..... 86

4. Tomato concentrates and related products..... 87

5. Olive oil industry..... 87

6. Other industrialization possibilities..... 88

V. MARKETING, PRICING AND TRADE OF THE AGRICULTURAL PRODUCTION.. 89

A. General..... 89

1. Marketing..... 89

2. Pricing..... 90

3. Trade..... 91

B. Commodity groups..... 93

1. Cereals and pulses..... 93

2. Industrial crops..... 94

3. Vegetables..... 94

4. Fruits..... 97

5. Poultry products..... 99

6. Meat production..... 102

7. Milk..... 103

C. Measures for improvement..... 104

VI. PRICE SUPPORT AND AGRICULTURAL SUBSIDY PROGRAMMES..... 108

A. Sugar..... 108

B. Tobacco..... 114

C. Silk..... 118

D. Sunflower..... 120

E. Cereals..... 122

F. Green Plan..... 125

VII. SUMMARY AND CONCLUSIONS..... 133

APPENDIX TABLES

TEXT TABLES

Page

1. Rate of growth of the exponential function representing the historical trend of the various sectors of the Lebanese economy, for the periods 1950-58 and 1964-69..... 15

2. Industrial origin of gross domestic product at current market prices for 1969..... 16

3. Growth rates for the agricultural sector on the basis of the gross value of production at constant prices, for 1956-69..... 18

4. Annual average growth rates of the agricultural sector and sub-sectors for 1956-69, on the basis of the gross value of agricultural production at constant prices..... 19

5. Annual growth rates of commodity groups in the agricultural sector during different periods..... 20

6. Rates of growth of the agricultural sector for countries in the Near East region, for the period 1957-70..... 22

7. Division of total area in 1967..... 25

8. Grazing area in 1965..... 26

9. Proportion of agricultural area under different types of tenure in the different provinces of Lebanon, 1961..... 29

10. Number, area and average size of holdings in different provinces of Lebanon, 1961..... 30

11. Holdings reporting a specified number of parcels of land in different provinces of Lebanon, 1961..... 31

12. Partially and permanent irrigated area as to provinces for 1970 33

13. Proportion of permanent and partially irrigated area to annual cropped area as to provinces, 1967/69..... 34

14. The major irrigation projects under study or in the beginning of execution in Lebanon, 1970..... 35

15. Type of power used on farms in different provinces in Lebanon, 1961..... 36

16. Agricultural machinery in Lebanon in 1967..... 37

17. Relative distribution of the active population by sectors in 1959, 1964 and 1968..... 42

/...

	<u>Page</u>
18. Distribution of the productivity per employee as to sectors in 1968.....	43
19. Major sources of public and commercial agricultural credit and amounts granted in Lebanon in 1969.....	48
20. Amounts budgeted to the Ministry of Agriculture, 1965-69.....	53
21. Effective outlays of the Ministry of Agriculture, 1965-69.....	53
22. Structure of the cropping pattern by commodity groups, 1956/58 and 1967/69.....	56
23. Structural changes and percentage distribution of gross value of crop production by commodity group, 1956/58 and 1967/69.....	58
24. Production structure of the animal husbandry sector in terms of the gross value of production, 1956/58 and 1967/69 .....	64
25. Percentage change in livestock population 1956/58-1967/69.....	65
26. Production, trade and availability of hatching eggs and day-old chicks in 1960, 1965, 1970.....	69
27. The number of layer farms and layers in 1965, 1969, 1970.....	70
28. Estimated production and net supply of table eggs in Lebanon, 1960, 1965, 1970.....	71
29. Number of broiler farms and broilers per flock 1960, 1965, 1970...	74
30. Production, trade and availability of broilers in 1960, 1965, 1970	74
31. Slaughtered animals in 1956/58 and 1967/69.....	76
32. Red meat production and share of domestic and imported animals in total production in 1956/58 and 1967/69.....	77
33. Change in the number of milk animals, average yield and total milk production between 1956/58 and 1967/69.....	80
34. Imports and exports of food products and agricultural products (food and non-food products), 1966-1970.....	91
35. Share of trade in food and agricultural products in total trade (in value terms), 1956/60-1970.....	92
36. Percentage change in imports of grains during the period 1956/58-1967/69 .....	93
37. Trend in wholesale prices of various vegetables on the Beirut wholesale market, 1956-69.....	95

/...

	<u>Page</u>
38. Trend in wholesale prices of some fruits on the Beirut wholesale market, 1956-69.....	98
39. Percentage change in exports of main fruits between 1956/58 - 1967/69.....	98
40. Trend in average annual wholesale and retail prices of table eggs, 1956-69.....	100
41. Price trend of average annual wholesale and retail prices of red meat in Beirut, 1956-69.....	102
42. Imported animals for slaughtering as a percentage of total local animal population, 1956-58 and 1957-69.....	103
43. Average annual supply of refined sugar during the period 1961/65 and 1966/1970.....	108
44. Area, production and yield of sugar from 1959 to 1970.....	112
45. Area, production and value of production of tobacco by mohafazat in 1970.....	115
46. Silk production and farmers involved in 1970, distributed over mohafazats.....	118
47. Area, production and yield of sunflower production and number of farmers and villages involved, 1966-1971.....	120
48. Quantities of wheat, barley and maize bought by the Cereals and Beets Office, 1963-1971.....	122
49. Wheat bought by the Cereals Office and farmers benefitting, as to provinces, 1970.....	123
50. Reclaimed area, farmers benefitting and total reclamation costs of the Green Plan by mohafazat, up to 1970.....	126
51. Number of fruit saplings distributed to farmers and costs of public roads as to mohafazats, up to 1970.....	127
52. Distribution of the cost of the price support programmes as to provinces, 1970.....	130

APPENDIX TABLES

1. Industrial origin of net domestic product at factor cost, 1950-58
2. Industrial origin of gross domestic product at current market prices, 1964-1969.
3. Value of gross agricultural production at constant prices, 1956-69
4. FAO Regional Gross Index numbers of agricultural production by commodity groups, 1957-1970.
5. N,P and K fertilizers available for local consumption, 1954-1970 gross weight.
6. Import, Export and availability for consumption of insecticides in quantities and value terms, 1956-1970.
7. Amount of credit granted annually by BCAIF, 1956-1970
8. Amount of agricultural credit granted annually by the BCAIF distributed to provinces, 1956-1970.
9. Development plan execution: planned, budgeted and actually spent amounts, 1965-1969 programme.
10. Distribution of cropped area over main crops and commodity groups, evolution 1956-69.
11. Area, production and yield of cereals, 1956-69.
12. Area, production and yield of various legumes, 1956-69.
13. Area, production and yield of some industrial crops, 1956-69.
14. Area, production and yield of fruits, 1956-69.
15. Area, production and yield of vegetables, 1956-69.
16. Livestock population in Lebanon 1956-69.
17. Production of annual products, 1956-69.
18. Number of parent stock chicks imported for the production of hatching eggs, hatching eggs used for production of chicks; imports and exports of hatching eggs; production, imports, exports and availability of chicks, 1960 - 1970.
19. Number of layer chicks; total production of hatching and table eggs; production, imports and exports of table eggs, 1956-69.
20. Production, import and export of broilers; net availability and per capita consumption of poultry meat, 1960-1970.
21. Average annual wholesale prices of various agricultural commodities, 1956-69.
22. Seasonal indices for wholesale prices of various vegetables and fruits on the Beirut wholesale market, 1956-1969.
23. Marketing margins on the Beirut market, 1963-1969.
24. Imports and exports of agricultural products by main food and non-food commodity groups, 1961-1970 (SITC).
25. Structure of import of food products, 3 years average of value, 1961-1970.

26. Structure of export of food products, 3 years average values, 1961-1970.
27. Support cost to the government, administrative expenses excluded of various subsidized crops and number of farmers benefitting of it, as to provinces, 1970.
28. Support cost to the government of subsidized crops, 1970.

## INTRODUCTION

Lebanon is located on the eastern shore of the Mediterranean Sea. It is bounded on the north and east with Syria, and on the south and southeast with Palestine. It is a relatively small country with a land area of 1 million km<sup>2</sup>.

The Lebanon countryside is dominated by two mountain ranges, which extend parallel to the coast. In between these ranges lies the fertile Bekaa plain, the most important agricultural region of the country. The country has a mediterranean climate, which varies greatly according to elevation and orientation. Along the coast the temperature is mild, and frosts are rare. On the western slopes of the Lebanon mountains temperature decreases with altitude but frosts are not too severe because of the tempering effect of the Mediterranean. East of the Lebanon Mountains and in the Bekaa Valley the climate is more continental; extremely hot and dry summers and winters that can be very cold.

In the coastal plain rainfall ranges from 700 mm in the south to 850 mm in the north and in the Bekaa from 600 mm in the south to 200-250 mm in the north. Rainfall falls for about 85 per cent between November and March, with a heavy concentration from December through February. In general, the soils are poorly suited for agriculture. Over a good part of the country there are steep slopes with thin layers of soil over bedrock.

In the past the country's economy has been growing at a satisfactory rate. The trade and services sectors are predominant in the economic structure of the country, the goods producing sectors accounting for a share well below 30 percent of total production. The foreign sector plays an important role in the development of the country: the persistent and growing merchandise trade deficit of the country, has been met annually by receipts or services, factor income, transfers and capital inflow.

Although not the dominant sector, agriculture has a vital role to play in the country's economy. The contribution of agriculture to the gross domestic product is only 10 percent, somewhat like 34 percent of the permanent labour force is employed in this sector, more than 40 percent of total export earnings are comprised of agricultural products and imports of agricultural products account for 25 - 30 per cent of total imports.

/...

The total cultivated area in the country is estimated to be 390.000 ha. More than half of the cultivated area has been developed from rough slopes through the use of terraces; the rest of the land is located on plains and valleys. About 200,000 ha are cropped area, the remaining being fallow land. Most of the non-cultivated land is used as rangeland for sheep and goats. Abandoned lands cover vast areas in different part of the country, 45 percent of all these lands are located in the Bekaa.

Rainfed agriculture covers about 70 percent of total cropped area. In general, cereals and pulses together with olives, figs and grapes are grown on non-irrigated land, while vegetables, sugarbeets and high-value fruits (citrus, apples, bananas,...) are produced on irrigated areas.

Annual crops occupy 65 percent of cropped area; perennial crops about 35 percent. Wheat occupies the largest areas under crops, about 30 percent. Second in importance are olives with 12 percent, then grapes 7.5, barley 6 and citrus fruits and apples each 5 percent. Total pulses occupy 6.5, industrial crops 6 and vegetables 14 percent of total cropped area.

The average value of agricultural production at constant prices reached LL 521 million for 1967-1969. About two thirds were produced by the crop sector, and the remaining one third by the animal husbandry sector. Measured by the value of production the most important sector of Lebanese agriculture is fruit growing which accounts for one third of total value. Cereals, notwithstanding the large area cultivated, constitute only about 3.5 percent of the produced value.

Foreign trade in agricultural products is very important to the country's economy. Both exports (citrus fruits, apples, eggs, vegetables) and imports (cereals, live animals, milk and milk products) account for a substantial part of the total foreign trade. Various measures aim at encouraging and boosting exports of agricultural goods, while others regulate imports.

Lebanon being a relatively small country grows a large variety of crops because of combinations of climate, topography, soil and availability of water. Broadly speaking, the country can be divided into five agricultural zones: the narrow coastal strip, the western slopes of Mount Lebanon, the Bekaa valley, the Anti-Lebanon Hermel area and the Southern mountains.

/...

The agricultural development problems of Lebanon are complex and various. Mostly the poultry and fruit sectors contributed to the growth of agriculture in the past decade. Incentives for growth of these sectors substantially emerged from the demand for their produce in the domestic market and in the countries of the region. In recent years nearly fifty percent of the egg production, about 5 percent of broiler production and 42 percent of fruit production were exported. As it is not likely that the domestic demand for these commodities will rise substantially in the near future, the rate at which these sectors will develop thus would mainly depend upon the marketing opportunities in the external markets, which are becoming rather limited for Lebanese fruits and poultry products. It should be added that in the future the export of vegetables could develop considerably, however.

On the other hand, Lebanon imports four-fifths of its consumption of red meat and two-thirds of its dairy products. Thus, the substitution of imports by domestic production offers vast opportunities for the development of the livestock sector. Paradoxically enough, the development of this sector, by and large, has been neglected so far. Beef production, it appears, would be closely linked with milk production and its development would therefore take a rather long period, whereas mutton production could be developed in a short period of time. There is distinctly a greater demand for mutton than for beef among the local population and there is a local breed (Awassi) having a good potential for milk as well as meat production. Cereals and grains, among field crops, present a substantial development potential for replacing their imports for human consumption and livestock feed.

It needs to be stressed that in order to give rational emphasis to the various sectors within the overall development of agriculture, many changes and adjustments in the price policy, subsidy programmes, development aims, marketing organization, administration and its procedures would be required. In order to initiate and implement corrective measures in the above mentioned fields the pivotal role to be played by the Government, especially by the Ministry of Agriculture and the semi-autonomous bodies in agricultural development, should not be lost sight of, however. To accomplish this task, dynamic leadership is a basic prelude which should be created, developed and encouraged urgently.

/...

An important ingredient of development built-in in the Lebanese society is that the Lebanese farmers have exhibited adequate initiative in development, good foresight in exploring possibilities of production, keen acumen in marketing, and sufficient entrepreneurship in taking risks and in introducing flexibility in production patterns. They have also expressed time and again, their resentment against government intervention beyond certain limits. In general, this attitude puts serious limitations on the spectrum of policy options available to the Government. But it should be understood that this attitude did not act as a serious obstacle to implement development and policy measures which do not entail drastic curtailment of personal liberties and initiatives. In the future, the Lebanese farmer, most likely, would be willing to accept government intervention within reasonable limits, provided he is convinced that such interventions are in their interest and beneficial to the country.

The present report attempts to examine the main issues of development, on the basis of the performance of the agricultural sector since 1956. Taking the growth performance as a starting point, it identifies contributing and retarding factors to agricultural development, such as agricultural resources and their utilization, agricultural institutions and administration, agricultural prices and trade policies, and price support and subsidy programmes, and it suggests development measures and policy changes required to be undertaken for achieving a feasible rate of growth of the agricultural sector.

/...

I. GROWTH OF THE ECONOMY

A. Growth

A continuous series of national accounts statistics for a sufficient number of years is a prerequisite for deriving meaningful estimates of growth rates for the whole economy and for its various sectors. For Lebanon, no such series is available. However, a series of net domestic product at factor cost (current prices) for 1950-1958 and a series of gross domestic product at current market prices covering the period 1964 to 1969, are available<sup>1/</sup> (see appendix tables 1 and 2). Apart from the difference in the content of these series, there is a gap in between the two series for the period 1959 to 1963, for which national accounts data are lacking. Further, the basis of the second series (GDP) is understood to be more precise and hence more reliable than the first series (NDP). Therefore, no attempt was made to link the two series to estimate the growth rates. Nevertheless, separate growth rates were determined for each of the two series and are stated in table 1.

Noteworthy is the fact that the growth rates for all sectors in the recent period with the exception of financial services were higher than in the earlier period, 1950 to 1958. In the recent period, the growth rates for the agricultural and construction sectors are reduced to nil at constant prices, since the wholesale price index was rising at a rate of 2.4 per cent per annum. According to the first series<sup>2/</sup>, these two sectors showed also relatively lower growth rates in the earlier period.

Comparing the overall rate of growth, it was 6.69 per cent for the 1964-1969 period and 4.29 per cent for the 1950-1958 period.

<sup>1/</sup> The 1950-58 series was constructed by A. Y. Badre of the American University of Beirut by up-dating to 1958 the estimates of the year 1950 calculated on the basis of some indicators which have not been explicitly defined. The 1964-1969 series was constructed by the Lebanese Central Statistical Office, Ministry of Planning.

<sup>2/</sup> A better estimate of the growth rate for the agricultural sector for the period 1956-1969 is stated in the following section.

/...

Table 1. Rate of growth of the exponential function representing the historical trend of the various sectors of the Lebanese economy, for the periods 1950-1958 and 1964-1969<sup>1/</sup>

	1950 - 1958		1964 - 1969	
	Net domestic product at factor cost (current prices)		Gross domestic product at current prices	
	$\bar{r}$	$\bar{R}$	$\bar{r}$	$\bar{R}$
Agriculture	1.25	0.76	2.22	0.76
Industry	3.61	0.97	7.05	0.96
Water and power	-	-	8.04	0.98
Construction	0.51	0.08	1.98	0.41
Transport and Communications	7.00	0.79	8.10	0.98
Housing	6.17	0.97	8.20	0.98
Financial Services	11.13	0.99	6.84	0.86
Other services	3.95	0.54	9.26	0.95
Trade	3.93	0.80	6.63	0.96
Government	7.20	0.91	8.89	0.98
Total economy	4.29	0.91	6.69	0.98
Beirut wholesale price index	-1.25	-0.39	2.44	0.96

Function:  $y = a (1 + r)^t$

$r$  = rate of growth (compound)

$R$  = correlation coefficient

Source: Computed by the United Nations Economic and Social Office in Beirut on the basis of national accounts data for 1964-1969, and the series of Net Domestic Product estimates for 1950-1958 by A. Y. Badre. American University of Beirut

<sup>1/</sup> Figures for 1970 are not yet available



A distinguishing fact of the Lebanese economy is that the share of the commodity producing sectors is well below one-third of the gross domestic product, and that the greater part of the national production comes from non-commodity producing sectors. The contribution of agriculture to GDP dropped significantly since 1950, when it accounted still for about 20 per cent of total GDP. In 1968-69, its contribution averaged only 10 per cent. As the growth rate of the agricultural sector is well below the growth rate of the overall economy, its share is expected to drop further in the future. Over the past two decades, mainly trade, services sectors (housing, transport and communications) and the government sector have increased their contribution to GDP. The relative share of various sectors in GDP in 1969 was as under:

Table 2. Industrial origin of gross domestic product at current market prices for 1969  
(Millions of Lebanese pounds; percentages)

	Value	Percentage
Agriculture, animal husbandry and fisheries	431.5	9.5
Water and power	104.2	2.3
Industry and handicrafts	609.2	13.3
Construction	216.2	4.7
Transport and communications	382.9	8.4
Housing	385.0	8.5
Financial services	146.0	3.2
Other services <sup>a/</sup>	461.7	10.1
Commerce	1,434.9	31.4
Government	393.0	8.6
G.D.P.	4,564.6	100.0

<sup>a/</sup> Other services include tourism, education, health and personal services.

Source: Lebanese National Accounts for 1969 (République Libanaise, Ministère du Plan, Direction Centrale de la Statistique, Les Comptes Economiques pour l'année 1969).

/...

## B. Growth of the Agricultural Sector

As a complete series of national income data was not available, a series of gross value of agricultural production at constant prices<sup>3/</sup> for the period 1956 to 1969 was constructed to arrive at a reliable rate of growth for this sector (see Appendix table 3). But it should be understood that this series represents the supply of agricultural commodities available both for intermediate use (feed, seeds and waste) in agricultural production and for other uses than agricultural production itself. It has not been possible to calculate further from this series the contribution of agriculture to the gross national product (value-added) because of lack of information on intermediate uses and purchases from the non-farm sector of materials and services used in agricultural production. Had the above stated information been known, it would have been possible to derive more reliable estimates of growth rates, for the agricultural sector and its sub-sectors. This limitation on the growth rates, stated in Tables 3 and 4, should be borne in mind.

The trend analysis performed on the series of gross value of agricultural production (1956-1969) has brought out a strikingly higher rate of growth (5.8 per cent)<sup>4/</sup> than the one derived from the GDP and NDP series (at current prices) stated in the foregoing section.

As regards the sub-sectors i.e. animal husbandry and crops, it is worth noting that the former sector grew at a much faster rate than the latter sector. Consequently, the share of the animal husbandry sector in the gross value of agricultural production increased from 19.3 per cent in 1956 to 35.8 in 1969. The share of the crop sector decreased from 80.7 in 1956 to 64.2 per cent during the same period. It is interesting to note that,

<sup>3/</sup> The annual estimates of agricultural production are based on information collected from six farmers purposely selected from each village in about 300 randomly selected villages. The percentage change in area under crops since the previous year is recorded. For estimating change in area of a given crop, farmers who do not have any area under the crop in the current year are excluded, underestimating thereby the decrease in the area under the crop and the structural changes. Thus the limitations imposed by the methodology adopted for collection of agricultural statistics have to be borne in mind.

<sup>4/</sup> This rate is very close to that calculated from the FAO series of index numbers of gross agricultural production for the period 1957 to 1970 (see Appendix Table 4).

/...

Table 3. Growth rates for the Agricultural Sector on the basis of the gross value of production at constant prices for 1956-1969.

	Regressions	R	Compound rate of growth Per cent
14 years	1. $Y = 233.085 + 22.093 t$	0.953	5.697
(1956 - 1969) Annual	2. $Y = 252.431 (1 + 0.0586)^t$	0.953	5.864
5 years	1. $Y = 258.860 + 25.475 t$	0.996	5.747
Moving average	2. $Y = 273.614 (1 + 0.0673)^t$	0.994	6.732
Generalized least squares applied to the 5 year moving average	1. $Y = 274.589 + 22.283 t$		5.049

Source: Computed by the United Nations Economic and Social Office in Beirut on the basis of Appendix table 3.

Table 4. Annual average growth rates of the Agricultural Sector and Sub-sectors for 1956-69, on the basis of the gross value of agricultural production at constant prices.

	Share in total value of pro- duction 1967-69	Function	r		R.
			(1)	(2)	
Agricultural Sector		$y = 233,08 + 22,09 t$	5.70		0.95
		$y = 252,43 (1 + 0.0586)^t$		5.86	0.95
Animal Husbandry Sector	34,3	$y = 26,55 + 11,66 t$	10.78		0.98
		$y = 45,39 (1 + 0,1161)^t$		11.61	0.98
Crop Sector	65,7	$y = 206,54 + 10,43 t$	3.40		0.89
		$y = 212,55 (1 + 0,0382)^t$		3.82	0.89
Cereals	3,4	$y = 29,15 - 0,78 t$	-3.29		-0.63
Pulses	1,2	$y = 8,72 - 0,20 t$	-2.73		-0.50
Oils and oil seeds (2 year moving average)	6,7	$y = 20,72 + 0,98 t$	3.62		0.71
Fruits	33,7	$y = 98,27 + 6,07 t$	4.31		0.87
Vegetables	13,4	$y = 36,40 + 2,53 t$	4.68		0.93
Tobacco	6,1	$y = 10,40 + 1,64 t$	7.50		0.96
Sugarbeets	1,2	$y = 0,92 (1 + 0,1592)^t$		15.92	0.81
Dairy products	7,2	$y = 14,29 + 2,19 t$	7.39		0.89
Eggs	10,6	$y = 2,28 (1 + 0,2665)^t$		26.65	0.90
Red meat	4,5	$y = 18,04 + 0,54 t$	2.47		0.76
Poultry meat	9,1	$y = 3,27 (1 + 0,2475)^t$		24.75	0.95
Fish	1,2				
Other animal products	$\frac{1,7}{100,0}$				

Source: Computed by United Nations Economic and Social Office in Beirut on the basis of Appendix table 3.

r = rate of growth (compound)

R = correlation coefficient

(1) Growth rate calculated as  $\frac{b}{\bar{Y}_A} \times 100$ . This gives the weighted average of annual rates of growth; weights being  $\bar{Y}_A$  level of income in year t-1.  $\bar{Y}_A$  is the arithmetic mean of expected incomes in years  $Y_1, Y_2 \dots Y_{t-1}$ .

(2) Growth rate constant over the period.

/...

within the animal husbandry sector, the poultry sector developed at a phenomenal rate, while the pace of development of the dairy industry was also remarkably high. On the other hand, the components of the crop sector experienced widely varying growth rates. The production of cereals and pulses considerably decreased, that of fruits and vegetables increased at a satisfactory rate and that of industrial crops i.e. tobacco and sugarbeet improved substantially. These widely varying growth rates emanated from structural changes which occurred in agriculture in the past two decades. These structural changes although, will be dealt with later in the paper, yet one notable fact worth mentioning here is that these structural changes were mostly directed to increase the relative contribution of high value crops to the total agricultural production and consequently leading to a reasonable rate of growth.

It must be cautioned that the over-all rate of growth, 5.8 per cent, achieved in the past 14 years should automatically not be taken as indicative for the estimate of the future trend. In this connexion it should be noted that the overall growth rate in the recent years has approached to zero because of the slowing down of the development of the leading sub-sectors and of not experiencing any improvements in the development of the laggard sub-sectors.

Against the relative stagnant position which prevailed in recent years, the government has adopted a 4 to 5 per cent rate of growth as a target in their six-year plan (1972-1977)<sup>5/</sup>. The possibilities of attaining this target are examined later in the report.

Table 5. Annual growth rates of commodity groups in the agricultural sector during different periods.

(per cent)

Year	Overall (1) Agriculture	Cereals(1)	Fruits (1)	Vegetables (1)	Dairy (1) products	Eggs (2)	Broiler (2)
1957	-	-	-	-	-	-	-
1960	5.0	-3.8	7.0	2.5	14.3	2.8	34.9
1963	9.0	1.1	6.0	6.9	18.1	33.3	57.6
1966	6.5	-1.6	2.3	4.6	4.1	109.9	27.1
1969	1.0	-15.4	2.1	3.7	-4.2	-1.7	6.2

Source: Computed by UNESOB on the basis of Appendix table 3.

(1) Growth rate based on 3 years centralized averages; except for 1968-69, two years average.

(2) Growth rate based on annual figures.

<sup>5/</sup> The press release of 1972-1977 plan was issued in early January 1972 by the Minister of Planning but the detailed plan was not available at the time this report was finalized.

C. Growth of the agricultural sector of Lebanon compared to various countries of the region

FAO has recently constructed a series of index numbers of gross agricultural production by commodity groups (1957 to 1970) for various countries in the world.<sup>6/</sup> In deriving these index numbers, the agricultural production of various commodities is weighted by regional prices as reliable data on national prices for many countries are not available. These index numbers for Lebanon and for its important neighbouring countries are given in Appendix table 4. The rates of growth for these countries calculated from the above mentioned series are tabulated below.

It is very important to note that the growth rate for the Lebanese agricultural sector (5.4 per cent) calculated from this series (1957 to 1970) employing regional prices as weights, is very close to that of the series (1956 to 1969) using national prices as weights (see table 3). Therefore it would be reasonable to accept a growth rate for the agricultural sector of around 5.5 per cent, contrary to the much lower rates indicated by the NDP (1950 to 1958) and GDP (1964 to 1969) series (see table 1).

Comparing the development in the agricultural sector of Lebanon with other countries in the region, the following salient results emerge:

1. Lebanon achieved the highest rate of growth among the countries of the region included for comparison.
2. The production of cereals in all countries, except Saudi Arabia, increased much slower than the overall production. However, it is a striking fact that cereals production in Lebanon declined at a considerable rate. This was particularly so for feed grains.

<sup>6/</sup> Food and Agriculture Organization of United Nations: FAO Index numbers of gross agricultural production by commodity groups; Monthly Bulletin of Agricultural Economics and Statistics, volume 20, No. 5, Rome, May 1971.

/...

Table 6. Rates of growth of the Agricultural Sector for countries in the Near East Region for the period 1957-1970 (Percentages)

Country	1 Total Agriculture	2		3 Cereals		4 Feed grains (cereals less wheat & rice)	5 Meat	6 Fruits		8 Vegetables
		(1)	(5)	Total	Grains (cereals less wheat)			Total	Citrus	
Lebanon	r 0.934	(5) -3.06	(5) -8.16	(1) 0.989	(1) 0.939	(1) 0.989	(1) 11.41	(5) 3.31	(5) 4.521	(1) 2.815
Syria	r 0.746	(5) 0.66	(5) 0.66	(5) 0.162	(5) 0.378	(1) 0.920	(1) 0.91	(5) 1.52	(5) 2.29	(5) 0.891
Jordan	r 0.687	(5) 1.12	(5) 1.12	(5) 0.632	(5) 0.689	(5) 5.37	(5) 0.913	(5) 0.75	(5) 10.73	(5) 1.95
Iraq	r 0.903	(5) 2.93	(5) 2.10	(5) -0.321	(5) 0.171	(1) 3.82	(1) 0.968	(5) -0.41	(5) 0.722	(1) 10.71
Saudi Arabia	r 0.978	(1) 3.88	(1) 3.93	(1) 0.89	(1) 1.62	(1) 0.40	(1) 0.886	(5) -0.27	(5) 0.722	(5) 3.11
U. a. R.	r 0.943	(1) 2.98	(1) 1.91	(1) 3.48	(1) 0.950	(1) 2.50	(1) 0.967	(1) 4.51	(1) 8.27	(1) 5.18
Yemen Arab Republic	r 0.653	(5) 0.771	(5) 0.771	(5) 0.898	(5) 0.950	(5) 0.967	(5) 0.948	(5) 0.928	(5) 0.928	(5) 0.966
Yemen Peoples' D.R.	r 0.58	(5) 1.49	(5) 1.49	(5) 0.926	(5) 0.926	(5) 0.926	(5) 0.926	(5) 0.926	(5) 0.926	(5) 0.926

Table 6. Rates of growth of the Agricultural Sector for countries in the Near East Region for the period 1957-1970 (continued) (Percentages)

Country	(1) Total Agriculture	(2)	3		4	(5) Meat	(6)		(8) Vegetables
			Total	Cereals			Total	Citrus	
Near East Region <sup>*/</sup>	r 3.02	(2) 1.95	(2) 1.61	(2) 0.81	(2) 0.81	(2) 2.74	(2) 0.993	(2) 4.67	(2) 2.87
	R 0.992	(2) 0.870	(2) 0.827	(2) 0.573	(2) 0.573	(2) 0.993	(2) 0.993	(2) 0.971	(2) 0.968

Source: Computed by UNESOB on the basis of data in FAO Monthly Bulletin of Agricultural Economics and Statistics, vol. 20, 5 May 1971, Rome, pp 8-28.

- r: Rate of growth  
R: Correlation Coefficient
- 1)  $y = a + b + t$  (1957 - 1970)
  - 2)  $y_1 = a(1 + b)^t$  (1957 - 1970)
  - 3)  $y_1 = a + b + t$  (5 years moving average)
  - 4)  $y_1 = a(1 + b)^t$  (5 years moving average)
  - 5)  $y = a + b + t$  (Generalized least squares applied to the 5 years moving average)

\*/ Near East: includes in addition to the countries stated in the table, Afghanistan, Cyprus, Iran, Israel, Libya, Sudan and Turkey.

3. The development in meat production (mainly poultry) was strikingly prominent in Lebanon followed by Jordan.

4. Fruit production in Lebanon also experienced a high growth rate compared to the other countries, with the exception of the U.A.R.

5. Remarkably enough, Iraq, Syria and U.A.R. attained significantly better advances in vegetable production, compared with Lebanon.<sup>7/</sup>

6. The overall rate of growth for the Near East region which includes more countries is lower than for Lebanon. But when regional growth rates of sub-sectors are compared, we note that the growth rate for cereals is higher, for meat lower and for fruits higher than the current rates for Lebanon. The growth rates for vegetables are almost the same in both cases.

In summary, it may be inferred that Lebanon achieved a comparatively higher growth rate than the other countries, by concentrating relatively more on high value commodities, especially meat (poultry) and fruits. However, a prominent imbalance in development was the decrease in cereals production and in particular in production of feed grains, which are an important input for meat production. Because of this and some technical considerations, a large proportion of the poultry feed was imported. This situation also inhibited largely the development of the red meat industry.

<sup>7/</sup> It should be stressed, however, that on the basis of the series 1956-69 using national prices as weights, the growth rate of vegetable production proved to be 4.7 per cent. But even so, Iraq, Syria and U.A.R. performed better in vegetable production.

/...

## II. AGRICULTURAL RESOURCES AND THEIR UTILIZATION

### A. Land use and land tenure

#### 1. Land use

Land, being a basic resource for agricultural production, has a great bearing on the development of agriculture. Therefore, the study of the evolution of the land utilization system and cropping pattern is important, not only to explain the past performance of agriculture, but also to formulate sound policies for development, offered by land and its future exploitable potential, corresponding to additional varying doses of capital, labour and technology.

As there does not exist any reliable time series on land utilization, the latest available official estimates are reported in table 7 below:

Table 7. Division of total area in 1967, in ha.

Category	Dry	Irrigated	Total	Percentage of total area	Percentage of cultivated area
Annual	107,294	34,293	141,587		19.1
Perennial	44,905	28,786	74,591		36.2
Total cropped area	152,199	63,979	216,178	21.2	55.3
Fallow land <sup>1/</sup>	174,745	-	174,745	17.1	44.7
Total cultivated area	326,944	63,979	390,923	38.3	100.0
Non-agricultural land	-	-	623,100	61.7	
Total area			1,023,023	100.0	

Source: Direction Centrale de la Statistique: Recueil de Statistiques Libanaises, 1969.

<sup>1/</sup> Land kept out of cultivation for one or more years.

/...

The cultivated area forms only 23 per cent of the total geographical area of the country. Further, only 55 per cent of this cultivated area is cropped annually, and the remaining 45 per cent is kept fallow. Thus, the annual cropped area constitutes only one-fifth of the geographical area. An evident weakness in the land use system is the small irrigated area,<sup>8/</sup> reported to be only 16 per cent of total cultivated area. Another striking fact is that the land going out of cultivation (abandoned) has been increasing in recent years. It is estimated to be approximately 175 thousand ha.,<sup>9/</sup> forming as much as 44 per cent of the present cultivated area and 80 per cent of currently cropped area. The greater part of it is situated in the northern Bekaa and large areas of terraced lands of Mount Lebanon.

Table 8. Grazing area in 1965  
(000 ha.)

Category	Per cent
Natural ranges, undeveloped open lands and barrens	56.4
Woodlands, forests	7.8
<u>Abandoned lands</u>	<u>17.2</u>
Sub-total natural vegetated lands	81.4
Cultivated with cereal crops	10.1
Cultivated with leguminous crops	1.1
<u>Fallow lands in rotation with cereals</u>	<u>7.1</u>
Sub-total agricultural lands	18.6
Total grazing resources	100.0
	870.000 ha.

Source: Thomas W. Sears: Grazing resources in the republic of Lebanon, Beirut 1965, p. 5.

<sup>8/</sup> Other (more recent) estimates of irrigated area are given later in Section B.

<sup>9/</sup> "Abandoned lands" in addition to lands that went out of cultivation includes cultivable lands; not cultivated at present.

/...

The range land is characterized mostly as poor in production because of soil erosion, inferior species of vegetation, etc. These ranges are further deteriorating because of overstocking and lack of a rational system of seasonal grazing.

The examination of the present land utilization system vividly brings out the appalling need to make multi-pronged efforts to effect appropriate improvements in it. Some important directions for development which require serious consideration are:

1. Development of irrigation by harnessing atmospheric, surface and underground water resources: Extension of irrigated area together with increased efficiency of the existing irrigation systems are a prerequisite for a prosperous agricultural development in Lebanon. On the short-term, particular attention has to be paid to improve the existing installations and increase the efficiency through reduction of waste, rationalization of water use and better management.<sup>10/</sup>

2. Reclamation of lands, terracing, etc. where it is feasible and economical to do<sup>11/</sup>. Studies should look into the feasibility of reclaiming lands and the various aspects concerned: which lands to reclaim and where, which crops to grow, establishment of an order of priorities,...

3. Reforestation to prevent soil erosion and to open up possibilities for forestry production.

4. As much abandoned lands as possible should be brought under cultivation or under pastures, by providing irrigation, applying organic manures and fertilizers, evolving a suitable variety of arable and pasture crops, etc. However, detailed feasibility studies should be made and only economically sound projects should be executed. It should be noted that an important condition

<sup>10/</sup> See Section B, p. 32-35.

<sup>11/</sup> The Green Plan is implementing a programme of land reclamation. It is discussed later in the paper. Up to 1970, 11,126 ha. were reclaimed.

/...

for development of abandoned lands in the mountain areas is the construction of agricultural roads to provide an easy access to these lands and land improvement works to improve the size and quality of the terraces.

5. A scheme of comprehensive soil survey should be elaborated and executed. This is one of the basic requirements in order to be able to demarcate the country into a number of homogeneous agricultural zones.

6. Development of range lands through programmes of controlled grazing periods, through deferred grazing, through introducing better yielding varieties of permanent grasses and shrubs to replace the mostly annual inferior species of vegetation, through a proper stocking rate, etc. Without these measures, it would be almost impossible to increase the much needed production of mutton and beef.

8. In order to maximize the use of the cultivated land, the fallow land should be decreased. It can be brought under annual production, since the present crop-fallow rotation with largely growing of weeds, does not conserve well either moisture or fertility. On the better grain land, wheat could be grown for 2 or 3 years in succession, broken at intervals by winter legumes. On the poorest yielding grain lands perennial grasses could be sown<sup>12/</sup>. Permanent grasses, if properly managed, require little maintenance or re-establishment, hence are cheaper per unit of area than the planted forage crops on such lands. The sowing of large areas under grasses and shrubs, together with other supporting measures, could lead towards planning the production of animal feed, instead of relying mostly on transhumant grazing and aftermath; and it would also help to replace considerably the imported feed grains.

<sup>12/</sup> Also a good part of the abandoned lands could be sown with permanent grasses.

/...

2. Land tenure, size and fragmentation of farms

The system of land tenure, farm size and the extent of land fragmentation are among the most important factors determining the land utilization system and cropping pattern and consequently, the level and structure of agricultural production. It is therefore of interest to examine these aspects of the agrarian structure of the country. The information with regard to these aspects is available from the 1961 Agricultural Census, since the results of the 1970 Agricultural Census are not yet known. However, in this connexion, it may be assumed that most likely the land tenure system has not changed widely over the past ten years; especially that no significant efforts were made by the government to alter the land tenure system during this period.

Table 9. Proportion of agricultural area under different types of tenure in the different provinces of Lebanon, 1961 (percentages)

Province	Total area in ha.	Area owned by cultivators	Area rented	Other area
North Lebanon	57,882	93	7	-
Mount Lebanon	44,780	88	10	2
South Lebanon	81,446	78	22	-
Bekaa	119,907	76	24	-
Overall	304,015	82	18	-

Source: Ministry of Agriculture, Census of Agriculture, 1961.

/...

It is encouraging to note that around 80 per cent of the total cultivated area is owned by farmers and the remaining 20 per cent is rented by them.<sup>13/</sup> The proportion of owned area varies between 76 per cent in Bekaa to 93 per cent in North Lebanon. In many instances land tenancy relations are not conducive to development and do not provide incentives to make efforts to increase agricultural productivity. Therefore, there is a need to improve the land tenure system for rented land in order to provide adequate security to tenants and consequently continuity in operations.

Undoubtedly, it would be desirable to steer the change in the land-tenure system towards further increasing the owned and cultivated area by farmers. However, an obvious important weakness lies in the small average size of farms characterized by an extreme land parcellation.

Table 10. Number, area and average size of holdings, in different provinces of Lebanon, 1961  
(Hectares; percentages)

Province	Holdings		Area		Average size of holdings (hectares)
	Number	Percentage of total	Hectares	Percentage of total	
North Lebanon	37,218	29	57,882	19	1.6
Mount Lebanon	34,986	27	44,780	15	1.3
South Lebanon	31,449	25	81,446	27	2.6
Bekaa	23,470	19	119,907	39	5.0
Total	127,123	100	304,015	100	2.4

Source: Ministry of Agriculture, Census of Agriculture 1961, Beirut 1966.

<sup>13/</sup> In the mountains most of the farmers own the land, while in the plains many of the smaller farms are cultivated by tenants. The bigger farms of the Akkar plain and the South are usually rented to tenants on a share-crop basis.

/...

The average size of farms for various mohafazats is given in table 10. The farm size is conspicuously low in North and Mount Lebanon. The distribution of the land over various sizes of farms further aggravates the problems embodied in small operations; for example, 73 per cent of the holdings covering 20 per cent of the total cultivated area were less than two hectares. The holdings less than 5 hectares comprised 91 per cent of the total holdings and 44 per cent of the total cultivated area. The large holdings, 50 ha. and above, forming 15 per cent of the cultivated area, were proportionately very small in number (0.34 per cent).

Table 11. Holdings reporting a specified number of parcels of land in different provinces of Lebanon, 1961.  
(Percentages)

	Total holdings	Holdings in			
		North Lebanon	Mount Lebanon	South Lebanon	Bekaa
Not fragmented	12	8	20	15	6
Fragmented	88	92	80	85	94
Total holdings	100	100	100	100	100
Number	127,123				
<u>Fragmented holdings reporting (in per cent of total holdings)</u>					
2 parcels	20				
3 parcels	17				
4 parcels	12				
5 parcels	9				
6-10 parcels	21				
11-15 parcels	5				
16 + parcels	4				
Total	88 per cent				

Source: Ministry of Agriculture, Agricultural Census 1961, Beirut 1966.

/...



As can be seen from table 11, a large proportion of all holdings were fragmented; two-thirds of the fragmented holdings had 2 to 5 parcels and the remaining one-third had 6 and more parcels. This extreme land parcellation is one of the main obstacles for improvement in productivity and hence in income and living conditions in the poorer regions (Hermel, Anti-Lebanon, Hermon, subsistence farming in the mountain areas,...).

It is obvious that the majority of the Lebanese farmers are living well below the average level of living of the persons employed in other sectors.

An unescapable conclusion emerges out of the foregoing discussion: the main weakness of the agrarian structure is the prevalence of small size holdings, fragmented into a number of parcels, which creates serious obstacles to adopt technical improvements speedily and is partly responsible for abandoning of cultivated areas. Among its several adverse influences on agricultural development, an important one of socio-economic nature is that the number of part-time farmers is understood to be increasing. Furthermore, some farmers are forced out of farming business because of high average production costs and because of the fact that mechanization of the parcelled plots - especially in the mountains - is very difficult, if not impossible.

It need hardly be stressed that strenuous measures should be taken to consolidate the fragmented holdings as quickly as possible.<sup>14/</sup> Also suitable steps should be adopted by the government - providing information on job opportunities in other sectors, extending housing facilities, making available adequate loans on reasonable terms, etc.,... - to decrease the stresses and strains on the farmers, who would be forced to leave agriculture.

#### B. Irrigation

Irrigation is of utmost importance in a system of intensive agriculture and one of the prerequisites for a prosperous agricultural development. Growth of the agricultural sector in Lebanon depends to a large extent on sufficient availability of water and adequate irrigation facilities if past trends in

<sup>14/</sup> Lebanon enacted a Land Consolidation Law in the 1930's. But very small progress has been made in consolidation because of its lengthy and cumbersome procedures.

/...

production are to continue in the future. This would mean that a large share of reclaimed or additional cultivated land will be devoted to fruits and vegetables. In the following table available data on irrigation are reproduced:

Table 12. Partially and permanent irrigated area as to provinces for 1970

(Hectares; percentages)<sup>1/</sup>

	Permanent irrigated area		Partially irrigated area		Total irrigated area	
	Hectares	Per cent	Hectares	Per cent	Hectares	Per cent
North Lebanon	16,750	31.3	3,250	12.5	20,000	25.3
Mount Lebanon	8,550	16.0	4,500	17.3	13,050	16.4
Bekaa	19,275	36.0	15,000	57.7	34,275	43.4
South Lebanon	8,975	16.7	3,250	12.5	12,225	15.4
Total	53,550	100.0	26,000	100.0	79,550	100.0

Source: Computed by UNRSCOB on the basis of: J. Amassian - Inventaire des surfaces irriguées au Liban en 1970, Ministère des Ressources Hydrauliques et Electriques, 1971.

<sup>1/</sup> Figures presented in this table differ from the estimates of the Ministry of Agriculture presented in table 7. The figures of the Ministry of Hydraulic and Electric Resources are the latest available.

Most of the development in irrigation took place after the Second World War when the permanent irrigated area increased from 24,000 ha. in 1945-46 to 45,000 ha. in 1955. During the period under review there was no substantial development in the area irrigated. It was estimated that the total irrigated area was in 1970 about 80,000 ha. Out of this total, 26,000 ha. got partial, irregular irrigation in spring (April-June).

In recent years the percentage of permanent irrigated area to annual cropped area was only 25 per cent; the lowest proportion (17.0 per cent) is in South Lebanon and the greater part of it is under citrus cultivation.

/...

Table 13. Proportion of permanent and partially irrigated area to annual cropped area as to provinces, 1967/1969  
(Hectares; per cent)

	Average cropped area in 1967/69 ha.	Permanent irrigated area to annual cropped area, %	Total irrigated area to annual cropped area, per cent
North Lebanon	50367.9	33.2	39.7
Mount Lebanon	25775.0	33.3	50.6
Bekaa	84536.7	24.0	40.5
South Lebanon	52880.3	17.0	23.1
Total	213559.9	25.0	37.2

Source: Computed by UNESOB on the basis of table 12.

Irrigation in the country is closely related to rainfall as a good part of the irrigation water is tapped directly from rivers. Also pumping from underground water resources, storages (North Lebanon) and wells are important water sources. It is believed that irrigation systems could be made more efficient through reduction of waste, improved canals, more rational water use and better management and through the use of the various water resources in the proper season, i.e. by using surface water as much as possible in the rainy season, and storing the excessive water and using the stored water and underground water in the dry season. It is also important to note that in some areas there are considerable cases of overuse of water to crops because of lack of knowledge among farmers on optimum water requirements of crops

It is significant to quote here that at present in the dry season not all available surface water is used. It was estimated that in the month of August, when the least water is available, 100 million c.m. are used, while 125 million c.m. are available. The unused water lost to the sea could be sufficient to irrigate an additional 6,000 hectares. <sup>15/</sup>

<sup>15/</sup> See: RL, Ministry of Hydraulic and Electric Resources: Water resources in Lebanon and the policy to be pursued in using these resources, 17 April 1971 (in Arabic).

/...

The above stated instances are indicative of the possibilities of increasing agricultural production considerably even by implementing measures leading to the optimum allocation of irrigation water resources available at present. Proposed official irrigation programmes (short-term) indicate that the irrigated area would increase by over 30,000 ha. in the late seventies, half of the area would be located in South Lebanon <sup>16/</sup> FAO long-run estimates state that the irrigated area could increase by about 80,000 ha., comprising land of a good or average suitability for irrigation <sup>17/</sup> In the long-run (25-30 years) the irrigated surface could double resulting in water requirements close to the disposable limits of the country. Realization of these objectives would substantially alter the prospects of Lebanese agriculture. Actually, there are some projects under study or in the beginning of realization. These would add 63,000 ha. of new irrigated land.

Table 14. The major irrigation projects under study or in the beginning of realization in Lebanon, 1970 (in hectares)

Region	Estimated new irrigated land	Already partly irrigated land	Total
Northern Bekaa (Hornel-ElQaa area)	6,000	-	6,000
South Bekaa <sup>1/</sup>	13,000	9,000	22,000
South Lebanon	33,000	8,000	41,000
North Lebanon (Akkar Plain)	4,000	6,000	10,000
Bouqaia Plain	-	3,000	3,000
Koura-Zghorta <sup>2/</sup>	7,000	-	7,000
	63,000	26,000	89,000

<sup>1/</sup> The execution of this project should have started in 1964 but it was several times delayed because the necessary technical studies were not available and consequently finance through the World Bank was not granted. At present, the required studies are ready and are to be submitted to the World Bank.

<sup>2/</sup> The necessary and detailed pre-investment and feasibility studies are ready and execution of the project is planned under the coming six-year plan (1972-77)

It is believed that at the end of the 1970's 10,000 to 15,000 ha. of land will be brought under irrigation, namely in the South Bekaa and Koura-Zghorta region and eventually in the Northern Bekaa.

<sup>16/</sup> Green Plan: Plan Vert II, Plan de Développement de l'Agriculture Libanaise, Beirut, 1968.

<sup>17/</sup> UNDP-FAO, Rapport Final, Leb/78 "Développement de la Montagne Libanaise", Vol. I général p.6 - enquête pédiologique et programmes d'irrigation, Beirut, 1968.

Apart from long-term projects, considerable attention should be paid to the execution of economical small irrigation programmes, with short gestation periods.

Finally, it should be stressed that water rights in the country are quite complex and most of them were determined as early as in 1925.<sup>18/</sup> Since then, many developments have taken place in the requirements of water use and its management. It is understood that water rights have already acted as a serious impediment to development in certain areas and it is feared that irrigation projects to be implemented in future would face more serious difficulties in optimum allocation of water resources because of water rights. It is therefore urgently needed, that problems and conflicts emerging out of these water rights should be resolved as early as possible through creating a proper and modern legislation, so that one of the most scarce resources, irrigation water, is properly developed and utilized in the future.

C. Agricultural machinery

The 1961 census of agriculture revealed little mechanization as 75 per cent of all farms relied upon animal power only. In the second part of the past decade, development in agriculture, fast rising labour costs and a growing scarcity of agricultural workers resulted in an acceleration of the mechanization process.

Table 15. Type of power used on Farms in different Provinces in Lebanon, 1961 (Percentages)

Province	Holdings No power	Reporting animal power only	Use of animal + Mechanical Power	Mechanical Power only	Holdings not reporting	Total Holdings
North Lebanon	14	83	2	-	1	100
Mount Lebanon	25	55	1	-	19	100
South Lebanon	4	83	8	1	4	100
Bekaa	3	70	19	5	3	100
Total	12	73	7	1	7	100

Source: Ministry of Agriculture, 1961 Census of Agriculture, Beirut, 1966.

<sup>18/</sup> The actual use of surface water, underground water, etc. by private persons is based on legislative rights of 1925 (Decree No.144), authorization or concessions (Decree No. 320), on temporary permissions which expired, or as in many cases in the absence of any legislative basis, on the discretion of the administrative authorities.

/...

At present, mechanization has developed mainly in the plains and prosperous mountain areas. The distribution of agricultural machinery over the four provinces in 1967 is given in Table 16.<sup>19/</sup>

Table 16. Agricultural Machinery in Lebanon, 1967 (Numbers)

Type	North Lebanon	Mount Lebanon	South Lebanon	Bekaa	Total
Crawler tractors	14	42	9	41	106
Tractors	574	98	618	780	2,070
Trailers	570	150	591	926	2,237
Reapers/harvesters	12	-	16	72	100
Treshers	62	-	116	70	248
Combined Harvesters	22	-	1	18	41
Sprinklers	5,860	4,603	5,720	1,781	17,964
Motor-sprinklers	963	782	570	139	2,454
Irrigation Pumps	262	1,424	908	3,710	6,304

Source: Ministère du Plan: Recueil de Statistiques Libanaises, 1967.

In 1967, there was one agricultural tractor for every 92 hectares cropped area and 180 ha. cultivated area. It is estimated that in 1970 about 3500 tractors were in operation, out many tractors were only used partly or not used at all for agricultural purposes.<sup>20/</sup>

<sup>19/</sup> Data on agricultural machinery are very scarce and contradictory.

<sup>20/</sup> In 1967, the total number of tractors imported (agricultural and non-agricultural) before and still in operation in 1967, as reported in the Recueil de Statistiques Libanaises, 1967 was: 2,649 four-wheel tractors, 439 two-wheel tractors and 425 crawler-tractors. If the figures for 1968 and 1969 are added, the following totals are obtained: 3035 four-wheel tractors, 503 two-wheel tractors, 446 crawler tractors. Considering the number of tractors discarded, the number of tractors in operation comes to about 3,500 in 1969.

/...  
 الجمهورية اللبنانية  
 مكتب وزير الدولة لشؤون التنمية الإدارية  
 مركز مشاريع ودراسات القطاع العام

The tractors are mainly of the small type, because of the lack of big farms, the parcellation through windbreaks and irrigation canals and the small size of terraces. At present, only some main agricultural operations (ploughing, disking and harrowing) are being performed with the use of tractors, which mostly are provided by contractors as few farmers own tractors themselves. The rates charged by contractors vary according to operations and are on a unit area basis. These are higher for orchards and mountainous areas than for plains. But the rates charged are quite reasonable as is generally the case in the neighbouring countries, Syria and Iraq. For example, the rate for ploughing in plains is LL.10.- per ha. A few farmers also rent their tractors on a custom hiring basis.

A clear distinction should be made between mechanization in the plains and in the mountain areas. In the plains tractors are in general sufficiently available, but still many cultural operations are done manually. In the Bekaa tillage and also sowing operations of cereals and industrial crops are mechanized. Intensive mechanization of some other operations and availability of suitable equipment would increase productivity and result in a better quality of work performed, as for instance in sugar-beet and cereals growing. In the mountain areas a considerable effort has to be made to mechanize operations<sup>21/</sup> through introduction of small tractors and equipment suitable for terrace cultivation and for stone picking, major obstacles in the way of expanding mechanization.

The estimated number of tractors and implements for complete mechanization of the agricultural sector by 1986-1987 is as follows:<sup>22/</sup>

<sup>21/</sup> When reclaiming abandoned terraces (mainly through the Green Plan) due attention should be paid to the needs of mechanization of these terraces in mountain areas.

<sup>22/</sup> G. Pellizzi, "Situation actuelle et perspectives de développement de l'agriculture et de la mécanisation agricole au Liban", Nov. 1971, Beirut, p. 51-52.

/...

- Tractors	9,000-10,000	70 per cent of 4-wheel type 25 per cent of 2-wheel type 5 per cent of crawler type
- Tillage equipment	17,000-19,000	
- Seeding and fertilizer equipment	8,500- 9,000	
- Threshing equipment	12,000-13,000	
- Pumps	10,000-12,000	
- Hand Tools and hand operated machines	180,000-200,000	
- Sprinkler irrigation units	15,000-20,000	

An increasing economic pressure for mechanization of more operations and for covering more lands is expected in future. Two main reasons which are likely to cause this pressure are (1) an increase in the demand for labour because of intensification and modernization of agriculture and (2) greater scarcity of farm labour because of a tendency to migrate from rural to urban areas and a likely decrease in the number of Syrian immigrant labour (actually 80,000 to 100,000 seasonal workers) because of development programmes envisaged in the Syrian Third Five-Year Plan.

It must be pointed out here that the opportunities for further mechanization in the country should be more rationally exploited. In the past, the private sector took the major role in financing mechanization and in selecting agricultural machinery. In both aspects, the Government should play an important role in the future. There should be an appropriate extension and advisory service for giving advice to farmers on the right mix of the agricultural machinery for various types of lands and enterprise combinations, on the relative profitability of mechanizing various agricultural operations, namely harvesting, planting, weeding, fertilizer and seed distribution, insecticides spraying and inter-cultural operations, and on operating and maintaining the agricultural machinery by organizing training courses. The Government should also provide for larger amounts of medium-term credit through the BCAF or co-operative societies to bring within the reach of an adequate number of farmers the purchase of an appropriate mix of agricultural machinery. A large number of small farmers neither can afford to buy appropriate machinery nor they can use it optimally. Therefore, the custom hiring system of tractors and agricultural machinery by owner-operators should be encouraged and the possibilities of co-operative ownership of agricultural machinery in the long run should be carefully studied.

D. Fertilizers and insecticides

Since the early fifties and up to 1965, the use of fertilizers increased rapidly, but most applications were of separate elements. Application of mixed fertilizers to vegetables, fruits and sugar-beets increased fast after the establishment of a large-scale mixing plant near Beirut in 1966.

Application of nitrogen on wheat and other cereals was started in the early fifties, followed by an increased use of superphosphates after the establishment of a superphosphate plant in Beirut in 1957. Potash is sufficiently available in natural form in the soil, unless crops require large amounts of it. Organic fertilizers are mostly applied to very productive crops as fruits in good condition and vegetables. The production of organic manures was adversely affected by the reduction in the number of cattle in recent years.

On the whole, fertilizer use is quite satisfactory in Lebanon, but it could be rationalized and better balanced (Appendix Table 5). The fertilizer use in 1967-69 was, on average, 523 kilos (gross weight) per hectare of cropped area, (about 100 kilos in elements <sup>23/</sup>). In the future, the use of fertilizers in certain regions will still increase. In particular, increased application of fertilizers to wheat, maize and other cereals and pulses would be required to achieve the full potential of high yielding Mexican varieties of wheat and hybrid maize being introduced in the country. Nevertheless, an important problem in extending the use of fertilizers to cereals and pulses would be the return to fertilizer application. It needs therefore hardly be stressed that the quantitative responses of fertilizers to cereals and the price ratio of cereals to fertilizers should be carefully studied before formulation of appropriate adjustments, at least for some years, in the prices of cereals, in order to give incentive prices to farmers for extending the use of fertilizers to cereals. It may be necessary after some time to decrease the

<sup>23/</sup> Application of fertilizers to fruits and vegetables is quite high. As for instance in the Bekaa: early potatoes 1.7 tons compound per ha (Central Bekaa); white onions 2.2 tons compound per ha. (Central Bekaa); tomatoes 2.0 tons mixed, 0.5 ammonium sulfate per ha. (Bekaa); cucumbers 2.0 tons compound, 0.5 ammonium sulfate per ha. (Western Bekaa). Applications to sugar-beet were 2.0 tons compound, 0.5 ton ammonium nitrate (Bekaa); wheat (unirrigated) 0.2 ton ammonium nitrate per ha. (Northern Bekaa); wheat (Hungarian and Italian) (unirrigated) 0.55 ton mixed per ha. (Central Bekaa); wheat (irrigated) 0.4 ton superphosphate, 0.2 ton ammonium nitrate per ha. (Northern Bekaa). Source: Ministry of Agriculture, Cost of Production data for various crops, Nov. Dec. 1970 (unpublished).

/...

subsidy of cereal prices, when the initial resistance of farmers for applying fertilizers to cereals is removed. It is, therefore, suggested that the price ratio of fertilizers to various cereals should be examined regularly along with their production levels and, accordingly, the price subsidies should be adjusted or dropped as demanded by the situation.

Also the use of insecticides is quite satisfactory for vegetables, potatoes, sugar-beets and fruits (see Appendix Table 6). Especially fruit growers realized the necessity of using large amounts of insecticides and fungicides. The introduction of programmes for weed-killing should be envisaged seriously, as large areas in the country are heavily weed infested. Antibiotics are used by milk producers and large amounts of vaccines to control contagious diseases (e.g. since 1968 to control the Newcastle disease) as well as chemicals are used in the poultry industry.

E. Labour force

Despite the fact that reliable demographic statistics are of vital importance, no such statistics are available for Lebanon. Various estimates have been put forward by different organizations. <sup>24/</sup> The Population Unit of UNESOB estimated the de facto population for 1969 (excluding Palestinians living in refugee camps) as 2,577,700. <sup>25/</sup> The population growth rate is believed to be 2,8 per cent per year. In the coming decade, the growth rate will probably decrease slightly to center around 2,5 per cent.

Estimates on the evolution of the active population <sup>26/</sup> are given in Table 17. It can be seen that there is a significant drop in employment of the primary sector (agriculture, fisheries and forestry) in favour of the tertiary sector activities. The active population is estimated to grow at 3.5 per cent per annum and 70 to 75,000 persons are estimated to be under or unemployed which would represent a maximum of

<sup>24/</sup> See in this connexion: UNESOB "La croissance économique et le niveau de qualification de la population active dans divers pays du Moyen-Orient", Avril 1971, p. 217-284.

<sup>25/</sup> A preliminary estimate for 1970 was 2,614,000.

<sup>26/</sup> The Central Direction of Statistics is processing a sample survey on the active population and its division by activity. Results are expected to be available early 1972.

/...

ten per cent of total active population.<sup>27/</sup> Some 60 per cent of the employed persons in agriculture are employers or self-employers and the remaining 40 per cent are wage-earners.

It is expected that the relative share of farm-employment will decrease further in the future. Nevertheless, the population depending, directly or indirectly, on the agricultural sector will remain important.

Table 17. Relative distribution of the active population by sectors in 1959, 1964 and 1968

Year	Primary Sector		Secondary Sector		Tertiary Sector		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1959	220,000	48.9	87,000	19.3	143,000	31.8	450,000	100.0
1964	220,000	45.3	98,000	20.1	168,000	34.6	486,000	100.0
1968	220,000	34.0	135,600	20.9	291,400	45.1	647,000	100.0

Source: For 1959, Ministère du Plan, RL, Mission IRFED, Besoins et possibilités de développement du Liban 1960-61. For 1964, Ministère du Plan, Prévision sur les besoins en main-d'oeuvre et les besoins en formation 1966 (mimeographe). For 1968, Ministère du Plan, Secrétariat Général du programme global intégré projections 1968-76, juillet 1970 (document interne).

Further, at the village level, in particular in the less favoured regions, agriculture will remain a way of life and the main source of earning a livelihood in the foreseeable future. Indirectly, the increase in agricultural production will lead to more employment in and development of activities in other sectors, especially industry and commerce.

As can be seen from Table 18, there is a striking and excessive disparity between the productivity in the agricultural and the trade sectors.

<sup>27/</sup> See footnote 24, p.222-226.

/...

Table 18. Distribution of the productivity per employee, as to sectors in 1968 (numbers; millions L.L.)

Sector	Employment (number)	Gross domestic product (millions LL)	Production per employee in LL.	Production per employee (index No.)
- Agriculture	220,000	436.0	1980	30
- Industry, Home industry	100,600	552.0	6470	98
- Water and Power supply		98.8		
- Construction and Public Works	35,000	193.7	5530	33
- Transport and Communications	46,700	379.8	8130	123
- Financial Services	9,500	164.1	17270	261
- Other services	102,600	731.9 <sup>a/</sup>	7124	107
- Trade	68,000	1,359.6	19990	302
- Administration	64,600	357.5	6880	104
TOTAL	647,000	4,273.8	6600	100

<sup>a/</sup> including housing (395 million L.L.)

Source: Appendix Table 2 - Ministère du Plan, Secrétariat Général du Programme global intégré, Projections 1968-1976, juillet 1970.

In conclusion, it should be noted that the wide difference between the productivity of the agricultural and other sectors is a basic problem. If this gap is not shortened by implementing suitable measures, it is feared there will be a more accelerated movement out of agriculture which would cause serious socio-economic problems in urban areas and a pronounced shortage of labour in rural areas.<sup>28/</sup> One of the foremost aims of the agricultural policy should, therefore, be the implementation of appropriate measures for achieving a reasonable parity in the income of the agricultural sector vis-à-vis other sectors. The attainment of a 50-60 per cent parity level for the agricultural sector should be the medium-term goal and 70-80 per cent the

<sup>28/</sup> Important is the fact that the sociological structures and interrelationships have very deep rural roots. The symbiosis between the Lebanese and their native lands and villages needs to remain consolidated in the near future, because the equilibrium of the society and the well functioning of the economy are closely related to it.

/...

long-term aim. There seems to exist a good potential for intensification and modernization of the agricultural sector for achieving the above stated level of parity income.

### III. AGRICULTURAL INSTITUTIONS AND ADMINISTRATION

#### A. The Cooperative Movement

The associations which existed before 1960 and were called cooperatives lacked the cooperative spirit and looked primarily after short-term profits. Among measures to promote socio-economic development, the government launched in 1960-61 a cooperative movement, which could accelerate economic expansion and play an important role in mass-education. At the same time, a bureau for development of cooperatives was created in the Ministry of Agriculture. In 1970 it was promoted to the level of division.

The cooperative movement took a real start when a law, promulgated by decree 17199 of 18 August 1964 created a new general legislation for cooperatives of all sectors, and decree 3401 of 11 December 1965 fixed in detail the organization of the cooperative movement and its rules of operation. In 1968, the National Federation of Cooperatives was created to defend, represent and control the cooperatives, to assure education and formation of the members, and to distribute all necessary information. Decree 9813 of 4 May 1968 created the National Union for Cooperative Credit, with an initial social capital of LL.500,000. Savings would be centralized and redistributed among the cooperatives. Initial approval of the government to start operating was given in 1970, but operations did not start yet because the statutes of the Union for Cooperative Credit had still to be written and submitted to the Government for approval.

The cooperatives established before 1960, which were not liquidated, were basically reformed and reorganized according to the new rules. At present, there exist about 30 cooperatives, half of them were created after 1960, with somewhat more than 1,000 members. Only some 10 cooperatives are economically strong and well-functioning. For example, the three cooperatives for conditioning and marketing of eggs accounted for over one-third of egg production in 1968-69.<sup>29/</sup> It is estimated that cooperatives cover only a small part of the total cropped area, definitely less than five per cent.

---

<sup>29/</sup> C. Kobeh: Le mouvement coopératif au Liban, Ministère d'Agriculture, p.5.

In Lebanon, the cooperative movement is not a reform movement, but a free-will cooperation. Modern institutions are needed to achieve its aims: to improve the level of living of the people through improvements in their economic situation. Establishment of cooperatives within such a context runs smoothly in middle-rich places, but is very hard to achieve in poor regions. Lack of a source from which cheap credit can be borrowed inhibits the development of cooperatives to perform services to low-income farmers. The actual policy aims at strengthening the activities of the existing cooperatives and not in the first instance at increasing the number of cooperatives, because of the severe lack of adequate personnel, managers, ... Creation of a cooperative is proposed by the Ministry only when the need is felt and the economic viability seems assured. The role of the central administration is limited to technical and, eventually, financial aid.

Attention should be drawn upon simpler forms of cooperative organizations, as for instance groups of collective interests. Such organizations could be very useful to create a certain co-operation among vegetable and fruit producers, to start exploitation of abandoned lands, to initiate development of semi-intensive sheep-rearing, to develop dairy and red meat production and to use agricultural machinery efficiently. Successful experiences in the poultry industry indicate that marketing cooperatives for specific products are also well suited to the country.

/...

#### B. Agricultural Credit

The Credit Bank for Agriculture, Industry and Real Estate (BCAIF) <sup>30/</sup> which is partly owned by the government, provides short and medium-term credit on reasonable terms (5.5 per cent). However, the activities of the Bank do not concentrate on the agricultural sector and loan-funds are insufficient, (see Appendix table 7). The agricultural sector gets slightly more than 40 per cent of the total loans granted. In the past five years around 5 million LL credits were granted to the agricultural sector annually, with Mount Lebanon and the Bekaa getting a greater share of the credits than South Lebanon and North Lebanon, (Appendix table 8). Short term loans cannot exceed LL.6,000 per loan and per farmer or 60,000 LL. per cooperative; short term loans are small in quantity, however (5 per cent of total grants in recent years). The remaining 95 per cent of the amount was given as medium-term loans to improve and develop the crops (maximum LL.30,000 per farmer or LL.150,000 per cooperative and up to 8 years). The procedures of the BCAIF are not appropriate for the average farmer, because the BCAIF only lends 25 per cent of the appraised value on the basis of a first mortgage on land. Only owners which were able to offer a certain guarantee succeeded in borrowing from the BCAIF. In 15 years time (1955-1970) only 12,500 loans were granted to the agricultural sector for a total value of LL.108 million.

Long term credit in Lebanon is granted by the Green Plan only. <sup>31/</sup> During the past three years (1967-1969) loans granted for land improvement varied from 5 to 9 million LL.

<sup>30/</sup> The BCAIF was created in 1955, completely dependent on the government for financing. At the end of 1969 total resources were LL. 105 million, of which 70 million were on loan from the Banque du Liban.

<sup>31/</sup> See Green Plan, p. 124.

/ ...



Most of the short term credit is granted by commercial banks (production credit, credit for import of seeds, etc..) at 9 per cent interest. Also importers and distribution agents of fertilizers and insecticides grant production credit and invoke no specific guarantee. Payment is mostly made after harvest and interest charged varies between 9 and 12 per cent. It is estimated that production credit was granted for 90 per cent of the chemical products used. It amounted to somewhat less than 20.0 million LL. in 1969. Importers of agricultural machinery grant credit up to one to two years with 25-40 per cent down payment and interest charges of 12 per cent.

Table 19: Major sources of public and commercial agricultural credit and amounts granted in Lebanon in 1969.

(LL 000; per cent)

	In LL.000	Share of total credit (per cent)
<u>Public credit</u>		
BCAIF	5,000	3.99
Green Plan	7,400	5.90
TOTAL	12,400	9.89
<u>Commercial credit</u>		
Commercial banks	93,000	74.16
Credit granted by agents of agricultural machinery, fertilizers (estimate)	20,000	15.95
TOTAL	113,000	90.11
	125,400	100.00

/ ...

It is estimated that in 1969 an amount of 125 million LL. agricultural credit was granted through the Green Plan, BCAIF, commercial banks and importers and distribution agents of fertilizers and agricultural machinery. This makes about LL.606 credit per hectare cropped area.

Loans from public sources are very small as the contribution of BCAIF and the Green Plan does not exceed 12-15 million LL. - only 10 per cent of the total volume of agricultural credit given by public and commercial sources.<sup>32/</sup> In addition substantial amounts of credit are secured annually by farmers from money lenders, relatives, merchants, etc. Estimates for it are not available.

It is no gainsaying, that agricultural development is hampered to a large extent by the severe lack of credit. The supply of agricultural credit to finance production (short term), to purchase equipment (medium term), to build agricultural infrastructure (long term), etc. is far short of the needs. At present the greater part of the production credit (short term) is advanced by commercial banks and by merchants and commission agents. Besides high costs many mal-practices exist. In many instances producers are tied to the money-lenders and commission agents because they advance seeds, fertilizers, feed, etc. (e.g. sheep and goat milk farmers in the Hama area, small fruit or vegetable producers,.....). Loans from rural money-lenders bear annual charges of 18 to 30 per cent, while well-off farmers can borrow from nearby banks at 12 per cent. In addition, there is a severe lack of long-term and, especially, medium term credit. The government should give serious attention to this particularly important problem of Lebanese agricultural development. The establishment of a Development Bank (for industrial development and tourism) should give ample reasons to the Government to convert BCAIF into a proper Agricultural Bank, granting credit under flexible conditions (inspired by the prevailing system of the Green Plan).

C. Agricultural Administration, Agricultural Policy and Agricultural Development Planning.

1. Agricultural Administration

The administrative structure of the Ministry of Agriculture is rather complex. The Ministry consists of five central services and four provincial services under the direct supervision of the Ministry. Besides, there exist five affiliated agencies to the Ministry, largely autonomous and under direct

<sup>32/</sup> according to the Banque du Liban, Rapport sur l'année 1970, commercial credit to the agricultural sector was in 1969 LL.93 million and in 1970 LL.83 million, Intra and BCAIF excluded (about 4-4.5 per cent of total credit), p. 26.

/ ...

supervision of the Minister of Agriculture. The added budgets of the independent agencies amount to a larger sum than the Ministry budget itself.

In brief, the aims of the semi-autonomous offices are as follows:

- a) The Silk Office was set up in 1956 to reorganize, revitalize and subsidize the silk industry.
- b) The Green Plan was created in 1963 with the overall purpose to improve the level of the agricultural sector. Measures aimed at, a.o. reclaiming new land, rejuvenating abandoned land, building agricultural roads, preparing reforestation, etc.
- c) The Fruit Office was established in 1959 to supervise the compliance of fruit exporters with rules and regulations issued by the Office, to promote exports, to participate in studies on production and trade, to issue country of origin and physiopathological certificates.
- d) The Animal Production Office was established in 1967 to promote the production and marketing of livestock and livestock products.
- e) The Agricultural-Scientific Research Centre, with headquarters in Tel Hana and branches in the Bekaa (Terbol, Akkar (Abdeh), Beirut (Pinar) and the South (Sour) to do technical research on various crops and livestock enterprises.

In addition, there is a tobacco monopoly which manipulates the tobacco subsidy programme, and the Cereals and Sugarbeets Office, which regulates the grain supply and stimulates and subsidises grains and sugar production.

In brief, the Agricultural Administrative structure is very complex. The actual non-pyramidal structure of the Ministry does not allow to canalize directives and information from the Ministry and its Director-General towards the various autonomous agencies. As there is no effective mechanism to coordinate the functions, duties and activities of the Ministry and the five semi-autonomous offices, there occurs a certain duplication in the work and a well-knit agricultural policy could not be evolved and pursued.

/ ...

It should be noted that the need to reorganize and revitalize the agricultural Administration has already been felt by the Government. <sup>32/</sup> Now, it is of crucial importance that more efficient administrative structures are created as soon as possible, to guarantee the execution of well conceived agricultural development policies and programmes. Along with the necessary reorganization of the Ministry, the quantity and quality of the officials has to be levelled up. These requirements, however, cannot be met within the actual budgetary limits. It is the government who should recognize the vital importance of the agricultural sector for the present and future, take a firm attitude and decide on a largely increased budget for agriculture. As long as no action in this direction is initiated and no concrete steps are taken, the agricultural sector, and with it the rural population, will be faced with many problems and difficulties. Hence, rigorous action in various fields will be needed to recreate a dynamic agricultural sector.

## 2. Agricultural policy

The Ministry of Agriculture and other agricultural autonomous bodies do not rigorously base their development programmes on information of the existing resources in the various agricultural zones, of their development potential and of the policies of the various other sectors. The government has mostly followed a policy of minimum interference. It has primarily tried to solve "trouble-shooting". Therefore, there is a pressing need to replace the sporadic decision-making by a well-thought, integrated policy and a long-run development programme, based on relevant policy options.

---

<sup>33/</sup> The Government envisages an administrative reform and already started executing certain reform measures. Concerning the Ministry of Agriculture, Mr. Saum was entrusted in 1971 with a mission to make proposals to reorganize this Ministry and he has submitted his report to the Government. Therefore, this question is not pursued in this respect.

/ ...

3. Agricultural Development Planning.

The government is liberally oriented and it assures private initiative a wide role in national economic development, as reaffirmed in the Beit-Eddine communiqué of the 22nd March 1971.<sup>34/</sup> The Ministry of Planning is responsible to formulate plans for development of the infrastructure in the public sector, medium-term capital expenditure programmes. These infrastructural (public works) programmes created the basis for an accelerated economic development and contributed substantially to overall development. These programmes were mainly financed from transit or terminal fees collected from the two oil pipelines and lesser amounts came from the regular budget. The elaboration of the development scheme takes place in cooperation with the planning unit in each ministry and in close cooperation with the Ministry of Finance for the evolution of receipts during the five-year plan period. There are also limited and not institutionalized contacts with the private sector.

The Council of Planning, consisting of ten members, studies and advises on the proposed projects by the responsible ministry and studies also the proposed public works programme before it is submitted for approval to the Council of Ministers. The Planning Commission, consisting of the director-general of the Ministry of Planning and two professors, is a technical commission which takes operational decisions and measures to foster the activities of the Ministry of Planning.

As far as agricultural development planning is concerned, three different agencies are involved: the Ministry of Planning, the Green Plan and the Ministry of Agriculture.

The 1965-1969 public works programme allocated 14.5 per cent of the planned investments to highway construction, 10.8 per cent to irrigation 8.2 per cent to social development projects, 6.7 per cent to drinking water supply, 6.6 per cent to social security, 6.5 per cent to agriculture and 6.0 per cent to government construction and expansion of the Lebanese University.

<sup>34/</sup> H.C. Durand, Notes on policy options for the 1972-76 Plan, draft, July 1971, p. 17.

/ ...

Out of a total of 788 million LL., irrigation and agriculture were allocated 85 million and 51 million LL. respectively, which added up to 17.3 per cent of total planned expenditures. There was a notable lag in expenditures on irrigation projects on which very limited progress was made (only 29.6 million LL. were spent during 1965-69). However, it should be noted that the effective outlays for agricultural development at the end of the period (LL.57 million) were larger than the planned amounts (LL.51 million), (see tables 20 and 21). However, the allocation of investment to the various projects was not strictly followed.

Table 20. Amounts Budgeted to the Ministry of Agriculture, 1965-1969  
(000 LL.)

	First Part (1)	Second Part (1)	Third Part (1)	Second and Third Part Total	Total Budgeted amount
1965	4671	8278	1000	9278	13949
1966	5210	8946	1500	10446	15656
1967	5281	9393	2000	11393	16674
1968	5355	8495	2250	10745	16100
1969	5429	7175	2500	9675	15104
Total	25946	42287	9250	51537	77483

Table 21. Effective Outlays of Ministry of Agriculture, 1965 - 1969.  
(000 LL.)

	First Part (1)	Second Part (1)	Third Part (1)	Second and Third Part	Total Outlays
1965	4620	7862	1000	8862	13482
1966	5549	9185	1500	10685	16234
1967	4845	9643	2000	11643	16488
1968	5127	12883	2250	15133	20260
1969	4801	8409	2500	10909	15710
Total	24942	47982	9250	57232	82174

(1) The First Part includes administrative expenses, wages, allowances, electricity and water.

The Second Part includes expenditures on construction and equipment on an annual planning basis.

The Third Part includes expenditure on construction and equipment for a long term project.

Source: Compiled by UNESOB on the basis of information from the Ministry of agriculture.

/ ...

The most important projects planned under the responsibility of the Ministry of Agriculture were scientific agricultural research (LL.16 million, 31 per cent), Green Plan (LL.9.5 million, 18.6 per cent), livestock development (4.2 LL million, 9.2 per cent), Fruit Office (LL.4.0 million, 7.8 per cent) and agricultural education (LL.3.8 million, 7.4 per cent), (see appendix table 9). It is important to note that over 40 per cent of actual outlays of the Ministry of Agriculture consist of contributions to the budgets of semi-autonomous bodies. This cuts short substantially the range of activities directly undertaken by the Ministry of Agriculture.

The Ministry of Planning has proposed a six-year plan (1972-77) with a total investment of LL.7,200 million, divided into public and private sectors as LL.1,740 and LL.5,560 million respectively. <sup>35/</sup>

#### D. Agricultural Extension and Education

##### 1. Agricultural extension.

The department of Agricultural Education, Ministry of Agriculture, has been in charge of extension work since 1955. Apart from a monthly publication which provides technical information to some 10,000 farmers, the department provides in-service training to extension workers and executes a programme of extension work in the villages.

At present, 40 extension agents and four supervisors are employed. Each extension agent is in charge of seven to eight villages: this means that only 15 per cent of all villages are covered adequately by extension work. FAO <sup>36/</sup> puts as a reasonable ratio for the region 1,000 families per full-time extension worker in non-irrigated areas and 500 families on non-irrigated

<sup>35/</sup> The prepared six-year plan is not given in detail as it is still awaiting approval of the Council of Ministers.

<sup>36/</sup> FAO-IWP for agricultural development, 1965-1985, the Near East, vol. 1, p. 165.

farmlands. Still strenuous efforts have to be made to reach this average. First, the situation of adequately trained agents and their career prospects should be largely improved. An increase in the number of extension agents should go along with an increase in quality, however; at present there are too few adequately trained men. A second aspect deserving notice here is that there remains yet much to be desired in the coordination of the research stations and the extension service. It is not yet adequately realized that the two-way flow of information between the extension service and the research stations is very important for a national agricultural development. While carrying to farmers results tested at research stations, the extension service should intimate to the research stations the immediate and medium and long term problems faced by the farmers so that the research stations can allocate rationally their technical and financial resources to solve these problems. Adequacy of research results compared to the needs of development of various crops and livestock enterprises could also improve substantially.

##### 2. Education

The main centre for agricultural education is the faculty of agricultural sciences of the American University of Beirut, which offers advanced training in scientific agriculture. Further, a school for higher secondary education for technicians for the Ministry of Agriculture and three post-primary schools offer practical training. The latter schools at Pinar, Abdeh, Nahr el Risik (Bekaa) are conducted by the Vocational Education Bureau of the Ministry of Agriculture and train about 20 to 30 students per year in each school. A fourth school in South Lebanon is expected to be started next year. At the FAO-Jear Post dairy training centre in Pertol (Bekaa) about 20 dairy technicians are trained each year (of which several are Lebanese).

The country has still a long way to go to develop the educational and training facilities to cope with the needs of extension and research, especially for medium level of technicians.

IV. AGRICULTURAL PRODUCTION

A. Crop production

Historical changes in the structure of the cropping pattern are indicated in detail in Appendix table 10. Nevertheless, the structural changes in it by major commodity groups can be seen in table 22.

A fact deserving mention is that the overall cropped area, instead of increasing dropped slightly during the period under reference. Increase in the irrigation facilities and the intensity of land use contributed to an increase in the cropped area; on the other hand, the expansion of abandoned lands adversely affected the cropped area, especially the area under cereals. Therefore, the cropped area failed to show any increasing tendency.

Table: 22 Structure of the Cropping Pattern by Commodity Group  
1956-58 and 1967-69  
(percentages)

Commodity Group	1956-58	1967-69
Cereals	46.8	34.9
Pulses	6.9	6.4
Industrial Crops	3.5	7.5
Vegetables	8.6	14.9
Fruits	34.1	36.2
Total	100.0	100.0
Annual Crops	65.9	63.8
Perennial Crops	34.1	36.2
Total Area (hectares)	218,405	213,215

Source: Computed by UNESOB on the basis of the Agricultural Statistics, 1954-1966, 1966...1969.

/...

The apparent structural change in the cropping pattern is a conspicuous substitution of cereals by vegetables and industrial crops and, to some extent, by fruits. Since these latter mentioned crops gave higher gross returns in value per unit of area than cereals, the above-mentioned directions of substitution contributed considerably to the growth of the agricultural sector.

A fact that deserves stressing here is the increase in area under industrial crops, namely sugarbeets, tobacco and sunflower. It has mainly been brought about by the support price programmes operated with substantial cost to the public sector (details are given in Chapter VI). On the other hand, market forces and technological improvements have been responsible for the gains in area under vegetables and fruits. It is relieving to note that the area under pulses (leguminous crops), did not decline on account of substitution by other crops.

In order to estimate the annual rate of increase in area for those crops which had gained in acreage during the period 1956 to 1969, the following trend functions were computed:

$y_1 = 15.308,08 + 1.270,90t$	<u>R</u>
$y_2 = 4.406,84 + 765,80t$	0,97
$y_3 = 71.174,50 + 2.171,63t$	0,87
	0,93

where  $y_1$  = area under vegetables in ha.

$y_2$  = area under industrial crops in ha.

$y_3$  = area under fruits in ha<sup>37/</sup>

t = years 1959 ..... 1969

The annual of increase for vegetables works out to be 1271 ha, for industrial crops 706 ha, and for fruits 2172 ha.

<sup>37/</sup> The function concerning fruits only pertains to the period 1956 - 1964, as more accurate estimates of the area under grapes and olives respectively in 1965 and 1966 did not allow to take the following years into consideration.

/...

Data on the production structure and changes in the gross value of the crop sector are given in table 23.

Table 23: Structural changes and percentage distribution of gross value of crop production by commodity groups, 1956/58 and 1967/69.  
(LL millions - percentages)

	1956/58 Gross Value	1967/69 Gross Value	Percentage Change 1956/58 - 1967/69	Percent of Total Value 1956/58	Percent of Total Value 1967/69
Cereals	26.8	17.6	- 34.3	11.8	5.1
Pulses	8.9	6.1	- 31.5	3.9	1.8
Fruits	106.1	175.8	65.6	46.6	51.3
Vegetables	42.2	69.6	64.9	18.6	20.3
Oils and Oilseeds	26.4	34.8	31.8	11.6	10.2
Sugar	1.6	6.5	306.2	0.7	1.9
Tobacco	14.4	31.5	118.8	6.3	9.2
Silk Cocoons	0.9	0.6	- 33.4	0.4	0.2
Cotton	0.3	-	-	0.1	-
Total Crops (percent)				100.0	100.0
Total Crops (LL millions)	227.6	342.5	50.5	227.6	342.5

Source: computed by UNESOB on the basis of Appendix table 3.

Following the foregoing discussion on broad categories of crops, an examination of changes in the area under and yield of individual crops will now be appropriate. The relevant data for this analysis are stated in Appendix tables 11 to 15.

As can be observed, the area as well as the yield of all cereals decreased; consequently their production fell by 35 percent and their imports doubled. Area under various pulses showed a mixed tendency, it decreased for dry beans and dry broad beans, and increased for lentils and chick peas. But because of their falling yields, with the exception of dry broad beans, their overall production declined considerably (by 31.5 percent).

/...

The area of all industrial crops expanded substantially. The yield of crops to which a price support programme was extended, improved considerably. For example, the yield of sugarbeet increased at a rate of 3.2 ton per hectare

$$y = 8.75 + 3.22t \quad R = 0.92$$

where

$$t = \text{years, 1955 - 1969}$$

$$y = \text{yield in tons per hectare}$$

But it is discouraging to note that the yield of groundnuts and the yield and production of other oil seeds, non-price support crops among the industrial crops declined. Nevertheless, the production of all other industrial crops improved with varying proportions resulting in a substantial increase in their overall production.

Alfalfa is the only fodder crop of some importance. At present, its area covers only 230 ha, but it is encouraging to note that its area as well as its yield are expected to increase significantly in the near future.

Considering the planted area, potatoes, tomatoes, onions, cucumber, cauliflower and cabbage and water melon are the more important vegetables. The production of vegetables improved by about 65 percent. All vegetable crops, with the exception of french beans, broad beans, melons, water melons and artichokes, contributed towards this increase. Further, it may be noted that the increase in vegetable production has mostly been brought about through extension of the area under potatoes, tomatoes, cucumber, cabbage and cauliflower and egg plant, mainly plainfield crops. Hence, improvements in yield, a crucial instrument for development, had not yet been adequately employed.

Citrus fruits and apples are the most important fruits of Lebanon. Among the citrus fruits, the production of oranges alone comprised 66.8 percent in 1967-69, the remaining production being lemons (25.5 percent) and grapefruit (7.7 percent). Despite the fact that the area under pears, peaches, plums, figs, pomegranates and a few smaller tree crops - quinces, almonds, loquats and walnuts -

/...

decreased, the overall area under fruits expanded by about 15 percent, mainly because of the fast expanding area under citrus fruits and apples<sup>33/</sup>. The area under olives is estimated to be stagnant around 2,700 ha. Yields of olive trees increased slightly during the period under review as many farmers tried to take full advantage of better cultural practices.

Because of notable improvements in the yield of most fruits, the overall production advanced proportionately more (65 percent) than the expansion in area.

The foregoing discussion of the past performance of various crops suggests that the following directions of development should be seriously considered:

1. The decrease in the production of cereals and pulses should be a matter of deep concern for various compelling reasons. Further replacement of cereals by industrial crops (tobacco, sugarbeets and sunflower), because of their high price maintained by the support programmes, should therefore be stopped. It can be accomplished by making growing of cereals and pulses more remunerative through effecting technical improvements and providing irrigation facilities. A very promising aspect of development is the introduction of adapted high yielding Mexican varieties of wheat and of hybrid varieties of corn. Extension of area under these varieties, combined with adequate input of fertilizers and insecticides would step up their production significantly. Sight should also not be lost off of the need to increase the yield of other cereals and pulses, however.

2. Further, concerted efforts should be directed towards incorporating pulses in the cereals-legumes rotation instead of the present extensively used rotation cereals - fallow (one to two years) on dry lands. This improved rotation should be extended to as much area as possible as. In addition to being more advantageous economically, it would build up the fertility level of the land and would create more opportunities for intensive use of agricultural resources, especially labour.

---

<sup>33/</sup> The abrupt drop of the area under grapes in 1966 was due to a more accurate estimate of the planted area. The area proved to be almost 10,000 ha. less than the 1965 estimate.

/...

3. Future implications of the price support and subsidy programmes for industrial crops are critically examined later in the report, but the policy choice to make the growing of cereals and pulses competitive to these industrial crops on certain lands, by lowering or abolishing these price subsidies, is relevant to be mentioned here. It hardly needs to be stressed that the increase in production of these grain crops would decrease their quantities imported for human consumption and for animal feed.

4. The area under fodders was only 400 ha. in 1969. Out of this area, alfalfa was grown on 210 ha. Since the decrease in the production of feed grains and the low production of fodders are not in consonance with the past developments in meat production (especially poultry), concerted efforts should be made to increase the fodder production, especially that of alfalfa. An important point deserving attention in this connection, is that on some lands fodders in general and alfalfa in particular can be good substitutes for heavily supported industrial crops. Thereby, they offer possibilities to considerably relieve the government from the burden of the recurring annual costs of these programmes. Further, intercultivation of fodders in the young orchards up to the age of 4 to 5 years (before the age of fruit bearing) is a profitable proposition which should be adopted on as much lands as possible, especially on the reclaimed lands under the Green Plan programme.

5. There seems to be considerable scope for producing primaries and out-of-season vegetables in the country. An encouraging trend has already set in in this direction. Plasticulture has recently developed in the south of Beirut (on relatively large undertakings) and north of Tripoli (initiated by Palestinian refugees on small plots). Some high-priced consumption vegetables and nursery seedlings for later transplanting are raised by using this technique. Some useful directions of further development are to extend plasticulture production to coastal and other areas, and to produce more vegetables and flowers.

6. Yet a lot remains to be achieved to attain a desirable level of yields for most of the vegetables. Without increases in yields, it is most likely that the development of vegetable production would taper off as the restrictions on extension of the area under vegetables are becoming more severe. Hence, research and extension for improving their yields will prove to be very rewarding.

/...

7. Some other facets of development deserving mention here are production of certified seeds of important vegetables, especially of potatoes and onions and extension of the production season. The onions bulbs imported from Syria were used as seeds in Lebanon but following restrictions on their export from Syria, systems of direct planting and seeds were introduced. Seasonality of production and export possibilities are discussed in chapter V.

8. In general, production of fruits is expected to increase substantially in future as sizeable areas will come into bearing or reach full-bearing age (citrus fruits, grapes, ...) and because there is considerable scope to improve yields through better technology and improvement in age-structure (apples, grapes, stonefruits, ....) It need not be stressed that fruits being perishable commodities marketing aspects as well as seasonality of fruits will get attention later in the paper (chapter V).

9. Citrus as well as apple production should be diversified. More early and late orange varieties should be planted in order to step up production at the beginning and end of the season. Regular provision of irrigation water in summer along with improved and extensive irrigation facilities could increase significantly the present relatively low yield of apple orchards. It is expected that in the future, area planted to apples will increase only slightly. New plantings should be limited to appropriate sites - in the mountains between 900 and 1700 meters - in order to assure optimal conditions of production.

10. Modern grape plantations on trellises with high yielding varieties and efforts to increase the area of grapes under irrigation should result in far higher yields and production of grapes.

11. Introduction of early/late varieties and more productive and demanded varieties of stone fruits as well as improvements in cultural methods should boost their yields and production. It is significant to note that, recently, the area under apricots and cherries expanded very fast because of favourable returns and market prospects for these crops.

/...

12. Returns from pistachio production are very rewarding. The area under pistachios, now a few hundred hectares, could easily be extended to a few thousand hectares provided the efforts to encourage their cultivation (distribution of plants) are intensified. Inter-planting in the first few years could decrease initial investment costs.

13. Also efforts should be made to raise very high quality saplings of various fruit trees, in particular for newly introduced varieties.

14. In recent years, interest in olive cultivation decreased because of steadily rising labour costs and fairly constant olive and olive oil prices. Lebanon should not make special efforts to develop traditional olive cultivation, because of the very reduced productivity of this crop and the severe competition of substitution products, consumption of which has even developed at the expense of olive oil. In the future, olive cultivation will only stand a chance if high quality olives are produced by grafting new, excellent varieties and/or cultivation of olives under irrigation<sup>39/</sup>.

#### B. Livestock production

In accordance with a general characteristic of Middle East agriculture, crop production also dominates the agricultural sector in Lebanon. Livestock production is definitely second in importance.

The livestock sector attained a conspicuously high growth rate as compared to the crop sector. Hence, the contribution of the livestock sector to the total gross value of agricultural production increased from 20 to 35 percent during the period under review. The growth of the various components of the livestock sector was widely different; poultry developed at a spectacular rate (25.0 percent per annum), dairy development experienced a high growth rate (8.0 percent per annum) while the red meat industry developed at a low annual rate (2.5 percent).

The changes in livestock production are caused by variations in numbers and productivity (Appendix tables 16 and 17). The structural changes which occurred in the production of the animal husbandry sector, are indicated in table 24.

<sup>39/</sup> Under the UNDP-FAO project for irrigation of the Koura-Zghorta region (6791 ha) it is planned to plant 15.2 percent of the irrigated area with table olives and 10.3 percent with improved traditional olives. The rest of the actual dryland olive region will be planted with citrus (42.4 percent), vegetables (13 percent) stonefruits (9 percent), grapes (7.6 percent), etc.

/...



Table 24. Production structure of the animal husbandry sector, in terms of the gross value of production, 1956/58 and 1967/69.

(LL. millions; percentage)

	Value 1956/58	Value 1967/69	Percentage Change 1956/58 - 1967/69	Percent of Total Value 1956/58	Percent of Total Value 1967/69
Dairy Products (milk)	16.7	37.6	125.1	30.0	21.1
Eggs (table) (hatching)	4.8 —	51.5 3.5	907.3 —	8.6 —	28.9 1.8
Poultry Meat	4.3	47.6	1007.0	7.7	26.7
Other Meat (Red)	13.0	23.2	28.9	32.2	13.0
Fish	7.1	6.2	- 12.7	12.7	3.5
Other Annual Products	4.9	8.9	81.6	8.3	5.0
Total Animal Products (percent)				100.0	100.0
Total Animal Products (LL millions)	55.8	178.5	219.9		

Source: Computed by UNESOB on the basis of Appendix table 3.

/...

Table 25. Percentage Change in Livestock Population 1956/58 - 1967/69

(thousand heads)

	Average 1956/58	Average 1967/69	Percentage change 1956/58 - 67/69
Dairy cattle	46.0	45.6	- 0.9
Other cattle	35.0	44.0	25.7
Total cattle	81.0	89.6	10.6
Male sheep	13.0	32.0	146.1
Female sheep	59.3	171.3	188.8
Total sheep	72.3	203.3	181.1
Male goats	81.0	70.0	- 13.6
Female goats	345.6	309.0	- 10.6
Total goats	426.6	379.0	- 11.2
Poultry: total	1883.3	16327.0	766.9
Layers	---	2827.0	-
Broilers	---	13500.0	-
Pigs	---	11.8	
Horses	---	2.9	
Mules	---	3.5	
Donkeys	---	28.9	
Camels	---	0.4	
Rabbits	---	21.9	
Beehives	---	42.3	

Source: Computed by UNESOB on the basis of national sources.

/...

The main results that emerge from table 25 are as follows: A spectacular increase was achieved in the number of poultry birds, making it a leading group in livestock development. Notwithstanding the small decrease in the dairy population the increase in its productivity led to obtaining a moderate growth rate in dairy production. Although, the sheep and cattle population became more numerous, the goat population on the contrary, diminished considerably. On the average, products per head of livestock (cattle, sheep, goats) remained constant; consequently, the production of red meat advanced at a comparatively lower rate than the above-mentioned other groups.

Since the development process, development problems and prospects of various components of the livestock production sector are quite different, it is appropriate to discuss these separately.

1. Poultry industry<sup>40/</sup>

Since its start in 1950 the poultry industry experienced great strides in its development. A significant characteristic was that in response to the competition from imported poultry products the poultry production became gradually specialized in layer industry, broiler industry and hatcheries.

With regard to the development of the poultry industry, it should be noted that the country became a net exporter of broilers and table eggs in 1963. It needs to be stressed here that partial protection to the industry was extended for the first time in March 1963 only, by levying an import tax on all imported eggs. As a result of this protection and the great flexibility shown by the industry in shifting from broiler to egg production, the egg production doubled in 1964. This shift was very beneficial since there was an overproduction of broilers. However, a few years later, the egg production became also in over-supply. The over-supply problem of poultry products was temporarily obscured by the loss during the June 1967 war of the west bank of the Jordan River, a region producing substantial quantities

<sup>40/</sup> As development of poultry production was closely connected with trade, aspects of trade are discussed under this section.

/...

of poultry products (for instance, exports of eggs to Jordan being 2.2 million in 1965, increased to 39 million in 1968). But in recent years, overproduction problems have begun to manifest themselves again because of a complete stoppage in 1970 of the egg export to Iraq as compared to 8.5 million exported in 1969, and the reduction in the export of broilers to Jordan<sup>41/</sup>.

At present, about one-third of the annual gross value of poultry production is exported. These exports are comprised of 50 percent of the egg production, 5 percent of the broiler production and 35 percent of the products of the breeding industry (hatching eggs and day-old chicks).

In short, it may be said that because of marketing problems (exports), the growth rate of the industry has been tapering off in recent years and problems of over-supply and idle capacity have emerged from time to time.

Paradoxically is the fact that on the one hand, among the various component groups of the agricultural sector, the poultry sector achieved the highest rate of growth and on the other hand, the cereals and grain sector faced declining production. As a result of these phenomena, most of the feed ingredients for poultry production had to be imported. It is estimated that as much as 70 to 75 percent of the total production costs for broilers and eggs are constituted by imported inputs<sup>42/</sup>. Among those imported inputs poultry concentrates and other feed ingredients are the most important, measured in value terms. For example, in 1970 32.7 thousand tons of these items were imported and they comprised more than 80 percent of the feed ingredients used by the industry<sup>43/</sup>. Incentives for development of the poultry sector were favourable climatic conditions, locational advantages for marketing and qualified management and entrepreneurship.

<sup>41/</sup> Jordan succeeded to increase its broiler production, but still imports substantial quantities of eggs from Lebanon since it has not yet been able to boost its domestic production of eggs.

<sup>42/</sup> At the end of 1969 there were about 15 firms producing animal feeds. The bulk of their production was marketed to poultry firms. Most of them are also grain importers and/or have an interest in the broiler and layer industry. While larger firms operate at 50 to 80 per cent capacity, overall one operates at 50 per cent capacity. Bulk buying of feed ingredients, by far the most expensive item in the cost of production, should be encouraged. No significant developments are envisaged in the animal industry in the coming five years. Dr. R. Kirby and D. Halliday: Report on the feed industry in Lebanon and prospects for increasing milk and beef products, Oct. 1969, p. 4-5.

<sup>43/</sup> K. Reda, A decade of development of the poultry industry in Lebanon 1960-1970, Beirut, 1971 pp. 87-90.

/...

The foregoing discussion pertained to overall poultry development. However, the poultry industry is comprised of three branches, namely the breeding, layer and broiler industry. Some specific characteristics and trends are discussed separately in the following sections:

The breeding industry (Appendix table 18). The number of hatcheries increased from 5 in 1959 to 21 in 1970. In between this period there was a large in and out movement in the industry. An important feature of the development was that the scale of operations increased greatly to take advantage of the benefits of increasing returns to scale. The number of hatched eggs per hatchery per week increased from 8.3 thousand in 1959 to 34.4 thousand in 1970<sup>44/</sup>. The large scale operations lent themselves to use more modern hatching techniques, which increased the hatching efficiency from 70 to 80 per cent. Furthermore, the larger firms were more suited to shift partly from exports of day old chicks to fertile eggs, as was determined by the trend in the export demand.

Important development in the production of and trade in hatching eggs are summarized in table 26.

<sup>44/</sup> Dr. K. Reda, op.cit. p. 12-13.

/...

Table 26. Production, Trade and availability of Hatching Eggs and Day-Old Chicks in 1960, 1965, 1970  
(numbers in 000)

	1960	1965	1970	Percentage 1960/65	Change 1965/70
Parentstock chicks imported	677 <sup>1/</sup>	346	498	---	43.9
Hatching eggs used for broiler and layer chicks	5346	24100	29080	350.8	20.7
Import of Hatching Eggs	---	56 <sup>2/</sup>	---	---	---
Export of Hatching Eggs	---	2694 <sup>2/</sup>	7541	---	180.9
Eggs Hatched	3392	20000	23625	489.6	16.3
Exports of Day old Chicks	246	5125	3522	1983.3	- 31.3
Chicks available for local production of <sup>3/</sup>					
a) layers	329	1514	2651	360.1	75.0
b) broilers	3300	12730	15500	285.8	21.8

<sup>1/</sup> Since 1965 the imported chicks are only parent-stock chicks. For earlier years figures comprise ordinary broiler and layer chicks and parent stock chicks. In 1960, the greater part were ordinary broiler and layer chicks.

<sup>2/</sup> Refers to the year 1966.

<sup>3/</sup> Figures have been adjusted for a mortality rate of 4 to 6 percent for broilers and 14 to 16 percent for layers. In 1969/70 the rate for layers was estimated to have risen to 18 to 22 percent.

Source: Annual Reports of the Poultry Section, Ministry of Agriculture, 1960 to 1970.

/...

Parent-stock chicks are imported to build up the basic stock, because the import of hatching eggs was discouraged by the government. Since the late sixties considerable quantities of hatching eggs are exported to the neighbouring countries. A significant tendency is that the exports of day-old chicks decreased by 31.3 percent, while those of hatching eggs increased by 180.9 percent between 1965 and 1970. The decline in the number of chicks exported was on account of their lower imports by Jordan and Kuwait, despite the increase in imports by Syria and almost constant import by Saudi Arabia. The exports of hatching eggs increased more spectacularly to Iraq, Saudi Arabia and Kuwait, considerably to Syria and slightly to Jordan. It is most likely that the demand for hatching eggs will increase in the near future, but the magnitude of its increase will be determined by the growth rate of poultry industry in the neighbouring Arab countries.<sup>45/</sup>

The layer industry (Appendix table 19). The number of layer farms and the total number of layers as known from three surveys are summarized in Table 27.

Table 27. The number of layer farms and the number of layers in 1960, 1965, 1970

	1960 - 61 <sup>a/</sup>	1965 <sup>b/</sup>	1970 <sup>c/</sup>
Number of farms	134	1153	464
Number of layers	206	3386	2774

a/ "Economic Analysis of Poultry Production in Lebanon", Faculty of Agricultural Sciences, American University of Beirut, Lebanon and Agricultural Research Service, Ministry of Agriculture, Lebanon, Publication No. 18, June 1962, pp 18-19.

b/ Figures from unpublished data of a census carried out by the Ministry of Agriculture in 1965.

c/ Figures from a survey carried out by the Animal Production Office, Ministry of Agriculture, and completed in March 1971.

Two important developments took place in the layer industry: the small layer farms disappeared gradually and were replaced by large commercial farms and the average production per layer improved considerably.

Information on some important indicators of growth of the layer industry is summarized in table 28.

<sup>45/</sup> The information from these surveys cannot be taken as very precise in numbers, but it gives a reasonable indication of the direction of development. /...

Table 28. Estimated production and net supply of table eggs in Lebanon 1960; 1965; 1970 (numbers in 000)

	1960	1965	1970	Percentage Change between	
				1960-65	1965-70
Total production of Hatching and table eggs	57500	302800	508758	426.6	68.0
Eggs used for Hatching	5346	24100	29080	350.8	20.6
Hatching eggs exported	---	---	7541	---	---
Production of table eggs	52154	278700	472137	434.3	69.4
Export of table eggs	6780	87342	243090	1188.2	178.3
Import of table eggs	15375 <sup>1/</sup>	86 <sup>1/</sup>	331 <sup>2/</sup>	- 94.4	284.8
Net supply for home-consumption	60749	191444	229047	215.1	19.6
Population	1874	2179	2525	16.2	15.8
Per capita net supply	32	87	90	171.8	3.4

1/ includes hatching eggs

2/ re-imported

Source: K. Rada: A Decade of Development of the Poultry Industry in Lebanon, 1960 - 1970, Beirut 1971, p. 38 and 43.

A number of factors contributed to the phenomenal growth of the layer industry. An important factor was the protection extended to table eggs in March 1963, by imposing an import duty of two Lebanese piastres per egg imported for consumption. Later, in November 1967, a decree was promulgated to forbid the import of table eggs for six months and in December 1968 their imports were banned for a year. Finally in September 1969 imports were forbidden with no time limit. Further, bilateral trade agreements of Lebanon

/...

with Arab countries included that export of eggs were not subjected to an import duty, in contrast to considerable duties levied on table eggs imported from non-Arab countries. Consequently, the Lebanese exports of eggs to the neighbouring countries increased tremendously. The export demand for Lebanese eggs increased greatly after the June War of 1967, when Jordan lost its West Bank, an important egg producing region.<sup>46/</sup> Iraq, Saudi Arabia, Kuwait, Jordan and Syria are the main importers. The trend in exports has been upward to all countries, with the exception of Iraq. In 1969 exports to Iraq decline sharply and in 1970 they ceased completely. Iraq, through its state organization for poultry trade, imported eggs from Bulgaria in bulk and at lower prices.<sup>47/</sup>

It bears mention here that the Lebanese Government intervened also on a number of occasions to promote exports. In 1967, during the shortage of eggs on foreign markets, the Government imposed a price ceiling on the export of different grades of eggs to keep good will in the Arab countries importing Lebanese eggs. Since 1970, the export of eggs is licenced and eggs exported are subject to strict quality control. It is very important to keep up high quality standards especially in the face of very hard price competition from the East European countries who sell their eggs at dumping prices.

<sup>46/</sup> Dr. K. Rheda: A decade of development of the poultry industry in Lebanon, 1960-1970, Beirut, 1971, p. 39-40.

<sup>47/</sup> Since 1969 Iraq imports eggs from East European countries at \$ 9.5 per case. Lebanese exporters of eggs sell to Arab countries at a rate of 11 to 12 \$ per case, on average. If Lebanon were to take back, through subsidizing egg exports to Iraq, half the number of eggs exported to Iraq in 1966-1968 (50 million eggs), the total costs to the Government would be LL 650,000. However, it is likely that consequent to this measure, the cost of production would decrease and a further profit squeeze would take place, reducing the total cost to the Government to less than LL 500,000. A measure in this direction, a selective subsidy to exports to Iraq, could save a good part of the actual problems in the egg industry.

/...



To sum up, it may be said that the layer industry is facing with certain obstacles to development and the downward trend in 1969 to 1970 has created uncertainties within the industry. Some of the important impediments to further development are: production costs increased because of higher feed costs and the average production per layer decreased as a consequence of the Newcastle disease (1968); the per capita consumption in Lebanon is not expected to rise materially in the near future; the effects of the world egg shortage and the June War, which boosted production and exports, disappeared; in the past the reputation of Lebanese eggs was greatly harmed by re-exports of East European poor quality eggs through some Lebanese exports; in the future competition from East European countries will still increase, as East European countries are dumping at very competitive prices and a certain development of the layer industry is most likely to take place in some countries of the region.<sup>48/</sup>

It is expected that for some time the region will remain a deficit area for table eggs; Lebanese exporters - under present conditions - face stiff competition and have difficulties not to lose a share of their export market. In the interest of the layer industry, a policy of controlled production is advocated, as, under present conditions, any substantial production increase will intensify cyclical surpluses.

The broiler industry (Appendix table 20). Similar to the layer industry, the scale of operation per farm increased greatly during the period under review (table 29). After the outbreak of the New Castle disease in 1968, economic considerations led towards the increase in the scale of operation and a reduction in the number of broiler farms.<sup>49/</sup>

Information on the main indicators of development of the broiler industry is given in a consolidated form in table 30.

<sup>48/</sup> Up till now production materialized only in certain areas of Saudi Arabia, but at a far higher cost price. However, the third Five-Year Plan of Syria envisages to replace imports by local production.

<sup>49/</sup> Dr. K. Rheda, *op.cit.* p. 57.

Table 29. Number of Broiler Farms and Birds per Flock in 1960-61, 1965 and 1970

	1960-61	1965	1970
Number of Farms	82	400	342
Number of Birds per Flock	512,700	2,831,875	3,334,770

Source: see table 27 p.70.

Table 30. Production, Trade and Availability of Broilers in 1960, 1965 and 1970  
(000)

	1960	1965	1970	Percentage Change	
				1960-65	1965-70
Production of broilers	3,300	12,700	15,500	284.8	22.0
Imports	604	-	-	-	-
Exports	25	165	266	560.0	61.2
Available for consumption	3,879	12,565	15,234	223.9	21.2
Poultry meat available <sup>1/</sup> for consumption - 000 tons	5.1	16.4	22.8	221.5	39.0
Per capita consumption in kg.	2.7	7.5	9.0	200.0	20.0

<sup>1/</sup> Poultry meat is calculated as one kilogram per dressed broiler and two kilograms per layer. Since 1966 the average dressed weight was taken as 1.16 kg. "Productivity and supply of agricultural products in Lebanon 1954-1966", K. M. Abed, A. Sattar, B.P.C. No. 2, A.E.C. No. 5, 1967. Table 33, p. 54.

Source: Computed by UNESOB on the basis of national sources.

/...

Development of the production of the broiler industry accelerated at the end of 1962 when the import of broilers was subjected to an import license. Later in 1967, imports were made unprofitable as a considerable duty was imposed (18 percent *ad valorem* and 50 P.L. as health charge). From the early sixties to 1967 the expansion of the broiler industry was directed, first to satisfy the domestic demand and afterwards to supply foreign markets. Since 1968 growth has been much slower because of the weak position on foreign markets and stagnation of the domestic market. It should be stressed that the whole broiler industry is based on imported feed products, which account for an important part of production costs.

Lebanese exporters faced stiff competition on Arab markets because their broilers were relatively high priced. The recent wave of vertical and horizontal integration in the broiler industry could lead towards stabilization of the market and open new possibilities for expansion of broiler production. It should be added here that *per capita* consumption of broilers (9 kg. per year) still represents a relatively low average compared to European countries, especially taking into account that poultry meat is by far the cheapest source of meat.

## 2. Red Meat Production

The relative importance of the red meat production sector in the annual husbandry sector decreased because it developed at a considerably slower rate than the other sub-sectors (Table 24). As can be seen from Table 32, the increase in the production of red meat from local animals between 1956/58-1967/69 is only 18.2 percent. There are, however, marked differences in beef, mutton and goat meat production. Only production of mutton showed a substantial development.

It is significant to note that, contrary to the poultry meat supply, the country depends heavily on red meat imports for its domestic supply. As much as four-fifths of total supplies of red meat come from the imported animals which are generally not at all fattened or fattened to a small degree locally. Beef from imported cattle supplies as much as 88 percent of total needs; mutton from imported sheep forms 89 percent of the total mutton supply and goat meat from imported goats assures 43 percent of the total goat meat supply (tables 31 and 32).

/...

Table 31. Slaughtered animals in 1956-58 and 1967-69 (heads)

	Average 1956-1958	Average 1967-1969	Percentage change
<u>Cattle</u>			
Local	17,000	18,500	5.1
Imported	49,000	115,300	135.3
<u>Sheep</u>			
Local	29,000	81,300	180.3
Imported	307,600	522,000	169.7
<u>Goats</u>			
Local	170,600	151,900	-11.0
Imported	55,300	90,600	63.8

Source: Computed by UNESOP on the basis of national sources.

The meat industry in the country lagged behind for a variety of reasons. Some important reasons are: most of the sheep and goats are raised under transhumant conditions by grazing natural pastures; movements of herds and flocks are highly influenced by rainfall in different areas; pastures are in poor condition because of overstocking mismanagement of grazing resources; overgrazing reduces the capacity to produce feed; animals are poorly fed, since most of the feed goes to maintenance; only a marginal part is available for growth or fattening. In general, the animals have low reproduction rates and are disease ridden in many cases.

/...

Table 32. Red meat production and share of domestic and imported animals in total production 1956/58 and 1967/69  
(tons - percentages)

	Average 1956-1958 (tons)	Percent of sub-total	Average 1967-1969 (tons)	Percent of sub-total	Percentage change 1956/58-1967/69
<u>Beef</u>					
Local cattle	2,130	26.7	2,200	12.3	3.2
Imported cattle	5,867	73.3	15,567	87.7	165.3
		100.0		100.0	
<u>Mutton</u>					
Local sheep	460	6.4	1,430	11.1	210.8
Imported sheep	6,760	93.6	11,467	88.9	169.6
		100.0		100.0	
<u>Goats</u>					
Local goats	2,030	67.9	1,830	57.2	-9.9
Imported goats	960	32.1	1,367	42.8	42.3
		100.0		100.0	
<u>Total meat</u>					
Local animals	4,620	25.4	5,460	16.1	18.2
Imported animals	13,587	74.6	28,401	83.9	109.0
Total meat	18,207	100.0	33,861	100.0	86.0

Source: Computed by UNESOP on the basis of national sources.

/...

It is striking that beef production from imported animals increased 165.3 per cent against only 3.2 per cent from local slaughtering between 1956/58-1967/69 (table 32). In 1967-69, 87.7 per cent of the cattle slaughtered were imported against 73.3 per cent in 1956/58. In Lebanon only few cattle are reared for beef production. In the near future the development of cattle raising for beef, it appears, will be closely linked with the development of dairy. Therefore, efforts directed to develop dairy farming will also help in increasing beef production, provided fodder concentrates and feed grains are available at suitable prices. But, this close link between milk and beef production should not deter the government in exploring possibilities for developing the fattening of calves as a specialized enterprise, especially in view of the fact that 46 per cent of the total supplies of red meat at present are met from imported cattle.

As can be seen from table 32, domestic production of mutton increased relatively fast. However, it only represented in 1967-69 11.1 per cent of a total mutton production of 12,900 tons. Local mutton production could increase very fast through improved nutrition and cross-breeding. It has been proved that the dual purpose fat-tailed Awassibreed, the majority of the local sheep, under conditions of proper management and nutrition gives excellent performances in meat and milk production. Intensive fattening of lambs (12-15 kilograms live weight) proved to be a remunerative proposition. Crossbreeding of Awassi sheep with more productive exotic breeds should also be tried to create more productive animals.

Domestic goat meat production decreased slightly during the period under review, while the rise in imports was moderate. In recent years more than half the goat meat supply came from local goats. It is expected that goat meat production will decrease in the future, as interest in goat raising decreases and prospects and profits of sheep raising are better.

/...

In conclusion, it can be said that vigorous efforts should be made to develop the red meat industry. It will be relatively easier to substitute sheep imports by local production than substituting cattle imports by local production. First, because the breeding cycle of sheep is short and they are more prolific than cows. Second, the local population prefers mutton over beef and mutton suits more to the dietary habits of the Lebanese. Third, the region has a very long experience in raising sheep for mutton. Therefore, the development of mutton production deserves a high priority. Developing of cattle production for beef is a medium term venture and at present its development seems to be considerably tied up with dairy development, because first, the exotic cow breeds and their crosses with local cows are dual purpose - for milk as well as meat production - and second a specialized fattening industry for beef has not yet made headway in the country. Nevertheless, serious attempts to develop cattle raising for beef could be very rewarding considering the numbers of imported cattle for beef production.<sup>50/</sup> A preliminary condition for the development of a fattening industry (cattle or sheep) is the availability of sheep and plenty feed, however.

### 3. Milk production

The share of the dairy sector in the total value of animal production declined from 30.0 per cent in 1956-1958 to 21.1 per cent in 1967/69, despite an increase of the value of production of 125.1 per cent during the same period (table 24).

As can be seen from table 33 milk production from cows increased from 19,400 tons in 1956/58 to 59,100 tons in 1967/69, mainly because of an increase in average lactation yield through the import of pure breed animals and cross-breeding. Up to 1965-66 there was a dependable milk price, allowing small scale farmers to supplement their income through milk production. This

<sup>50/</sup> FAO estimates indicate for the coming decade rising prices, particularly for beef, veal, mutton and lamb as the supply of meat is projected to be short of the demand in 1980 (7 per cent at constant prices). FAO agricultural commodity projections, 1970-1980; vol. 1, p. 134-140.

/...



possibility was an incentive to increase the number of milking cows by saving heifer calves. However, since 1965 the profitability of dairy farming was seriously questioned. Numbers of milk producers were forced out of business because of rapid rising production costs. This profit squeeze resulted in a reduced number of milking cows, but on the other hand it contributed greatly to stock upgrading and increase in efficiency of milk production.

Table 33. Change in the number of milk animals, average yield and total milk production between 1956/58-1967/1969  
(000 heads; kilogram per head, 000 tons)

	Average 1956/1958	Average 1967/1969	Percentage change
<u>Cow milk</u>			
Cows in milk	26.0	35.3 }milk cows 26.4 }working cows 8.9	35.8
Average yield	745	milk cows 992 working cows 735	60.0(milk co
Milk production	19.4	59.1 }milk cows 52.5 }working cows 6.6	204.6
<u>Sheep milk</u>			
Milk sheep	47.6	135.8	185.2
Average yield	65	74.0	13.8
Milk production	3.1	10.0	222.5
<u>Goat milk</u>			
Goats	276.0	218.5	-21.0
Average yield	65	101.7	56.5
Milk production	18.0	22.4	24.4

Source: Computed by UNESOB on the basis of national sources

/...

Sheep and goats contribute an important part to the total milk supply. In 1956/58 more than half and in 1967/69 35 per cent of the total milk production came from sheep and goats. Sheep milk production increased mainly through an increase in the number of sheep, while the increase in goat milk production resulted out of an increase in lactation yield. Most of the sheep and goat milk is used for processing milk products e.g. white cheese, laban, labneh, ... .

At present, nearly two-thirds of total consumption of milk products are imported. Relatively high milk prices in 1971 and prospects of a shortage of milk production in the world market <sup>51/</sup> have given some impetus to the dairy industry. Some farmers imported recently exotic breeds of cows (Friesian).

A scheme to import 12,000 cows during the coming 5 years and distribute these to small and medium farmers at the average rate of one to 2 cows per farm and at two-thirds of their import prices, is proposed by the Animal Production Office and under consideration of the Government. The milk production of the imported cows is not expected to substitute substantially the imported dairy products but it will considerably reduce or stop the growth of imports of dairy products. It could also act as an incentive to dairy farmers to follow the suit of their own.

With relation to sheep milk production it can be mentioned here, that spectacular increases in yield from 70 to 400-500 kilograms per lactation proved to be possible through selective in-breeding, earlier weaning of lambs of Awassi sheep and feeding with adequate nutrients. <sup>52/</sup>

<sup>51/</sup> Prices of butter and skim milk powder have reached high levels consequent to the change in the supply/demand position in 1970/71. Policy measures to curtail milk production and reduce the build-up stocks especially in W. Europe, together with adverse weather conditions and a shift out of milk production by farmers in highly developed countries, led to a general and sharp recovering in prices. FAO, commodity projections; 1970-80 vol. 1 p.113.

<sup>52/</sup> These results were obtained by experiments at the Government research station at Terbol (Bekaa).

/...

It should be stressed that a sound livestock development programme needs a package approach: import of improved breeds, cross-breeding, animal health control, feed and fodder production, efficient land tenure control, competent degree of management, remunerative prices of products, etc. It is also of crucial importance that there is an integrated development of the fodder, grain and livestock sub-sectors as there exist good resources and opportunities for planned production of feed and forage in the country

C. Spatial distribution of agricultural production<sup>53/</sup>

Good arable land is scarce in Lebanon. In order to reap maximum benefits the potentials of the various regions should be fully exploited. However demarcation of the country into a number of homogeneous agricultural zones is lacking.<sup>54/</sup> Agricultural statistics are based upon the administrative division into mohafazats and cazas. On this basis, development studies and projections as well as an optimal allocation of inputs and resources are very difficult, if not impossible, in particular that the administrative borders of cazas in many cases spread between the coastline and heights of 2,000 m, and do not coincide with the agricultural zones of the country.<sup>55/</sup>

The production patterns pursued in the coastal strip and in the five Mohafazats in which the country is divided are in brief stated below.

<sup>53/</sup> Statistics relate to the years 1967-69, except for the livestock sector, for which figures relate to the 1970 census.

<sup>54/</sup> In 1960 a valuable effort was made to divide the country into 12 agricultural zones. However, significant developments took place in Lebanese agriculture and, hence, this division needs to be revised and updated -- J. Gauthier and E. Baz, "Aspect Général de l'Agriculture libanaise", Ministère de l'Agriculture, 1960, 2 vol., 136 p. and 137 p.

<sup>55/</sup> The country is divided into 5 Mohafazats: North Lebanon, Mount Lebanon, South Lebanon, Bekaa, Beirut. Each Mohafazat is sub-divided in several cazas.

/...

The intensively cropped coastal strip and the vast Bekaa valley are the major agricultural areas in the country. The greater part of the citrus orchards and all banana groves are located in the coastal plain. It is also an area of intensive vegetable cultivation (suburbs of Beirut, Tabarja region and the plain of Jich, Damour region). North of Tripoli, South of Beirut and also around Tyr, out-of-season and early season vegetables, nursery plants and flowers are grown under cover.

The most important agricultural area is the Bekaa valley, however. More than half the area under wheat and corn,<sup>56/</sup> 75 per cent of the area under barley and more than 50 per cent of the area under legumes is situated in this province. A beginning of alfalfa cultivation is made in the Bekaa as it fits very well in an equilibrated rotation pattern for the heavy soils, on which the whole sugarbeet production is grown. Sunflower is grown in Northern Baalbeck and in the Hermel caza to replace the hushish crop. The Bekaa valley is also an important vegetable growing area: 60 per cent of the potato crop is grown there; tomato production is common in riverine areas; and onions, carrots and cucumbers are cultivated on the comparatively more fertile lands. The Bekaa is also a major fruit producing area: apples (20 per cent of the apple area); grapes (60 per cent of the area under grapes), mostly dryland high-yielding varieties on trellises on modern plantations; cherries (two thirds of the cherry orchards), in the surroundings of Zahle, and apricots, a typical crop of the Northern Baalbeck-Hermel region are grown in the Bekaa. The latter crop has good development perspectives in that region, especially in places where irrigation possibilities exist. There is also a concentration of the poultry breeding industry, layer industry (85 per cent of total layers, of which 60 per cent in the caza of Zahle) and broiler industry (30 per cent of total broilers - mainly in Zahle and Baalbeck). The province also accounts for 62 per cent of the sheep population, 41 per cent of the goats (Baalbeck - Hermel area) and 18 per cent of the cattle.

<sup>56/</sup> It should be noted that cropping of wheat in areas of very low rainfall (e.g. northern Bekaa, ...) as well as on mountain terraces disappears rapidly.

/...

In the province of Northern Lebanon 80 per cent of the sorghum and 25 per cent of the wheat are grown mainly in the Akkar plain and Akkar plateau. In the Akkar plain there is some concentration of plain field vegetables (e.g. 25 per cent the potato crop) groundnuts and citrus cultivation. In the recent past there was a substantial extension of citrus cultivation in this region. At present, it accounts for 14 per cent of total citrus groves. Plain field vegetables grown in the Akkar are rather complementary than in competition with vegetables grown in the Bekaa as market delivery dates of Akkar vegetables are a few weeks in advance of vegetables from the Bekaa. About half of the olive area is situated in North Lebanon (Koura-Zghorta region), producing the best quality olive oil and there is also 22 per cent of the tobacco area. Also 40 per cent of the broiler farms (mainly in Koura) and 37 per cent of the cattle are found in North Lebanon.

The Mount Lebanon province is an important fruit growing area. On the low foot-hills of Mount Lebanon various kinds of stonefruits and pears, and higher up apples and grapes are grown. 70 per cent of the apple crop is produced on the western slopes of Mount Lebanon in the provinces of North and Mount Lebanon. In the vicinity of Beirut various consumption vegetables are grown. 12 out of 21 hatcheries are located in Mount Lebanon and 12 per cent of the broiler farms are situated in North Moun. Also the greater part of the pure breed cattle are found in this region, which has 18 per cent of the cattle population.

The South Lebanon province has 25 per cent of the area under wheat and 30 per cent of the area under legumes. Also there is some concentration of vegetable growing and citrus fruit cultivation. This region is the important tobacco growing region (72 per cent of the area under tobacco) and is the second in importance for olive cultivation. Also 27 per cent of the goats and 28 per cent of the cattle, of which over half of the working cows and about 40 per cent of the milk cows, are recorded in this region.

/...

In closing the discussion, it may be stressed that there is a great need to delineate the country into a number of homogeneous agricultural zones on the basis of natural endowments and other resources. This should be given high priority since it will allow for a rational allocation of inputs among various zones, formulation of a realistic policy and development plans through determination of the quantum of zonal resources, exploration of instances of mal-allocation of resources and estimation of the potential of the agricultural production of these zones, and above all it will permit the evolution of optimum production plans for various zones, the ultimate aim of development. However, some directions of improvement, which obviously can be effected in the present production plans of various zones, are stated in various chapters.

D. Some possibilities for the processing of agricultural produce<sup>57/</sup>

1. Citrus fruit juices

Five processing plants, located in or near Beirut, have a total annual production capacity of 25,000 tons. Citrus fruit juices account for 80 to 90 per cent of total juice production. About 5 per cent of total citrus production is processed (75 per cent of it are oranges). A considerable part of the juice production is exported to Arab and East European countries. It would be worthwhile to explore the possibilities of increasing the production of citrus juices and their exports.

2. Industrial use of grapes

It is estimated that in recent years out of the total grape production (85,000 tons) about 55,000 tons were consumed fresh, 5,000 tons were exported and 25,000 tons were processed (5,500 tons for wine, 14,500 tons for arak, 4,500 tons for dry raisins and 500 tons for concentrates). In

<sup>57/</sup> See Roger Schwab, l'Industrie de transformation des fruits et légumes au Liban, état actuel et étude générale des possibilités de développement, Plan Vert, projet de développement de la montagne libanaise, octobre 1969.

/...

addition, 4,000 tons were imported for arak processing. As the production of grapes in the future will increase substantially, a part of the surplus is likely to be diverted to distillation for arak.

In recent years about 30,000 to 40,000 hl. of wine were produced annually. The domestic as well as the export market demand for Lebanese wine is likely to increase at a considerable pace. Therefore, the cultivation of wine grapes, especially on relatively poor soils - e.g. on mountain slopes - offers a good possibility for stepping up the production of wine grapes.

Production of grape juice is also a possibility which looks worth exploring.

### 3. Dehydration of onions

Industrial transformation of onions started in the beginning of the sixties. Difficulties with regular supply of onions at compatible international prices forced two of the four factories out of business. At present, two factories located at Zahlé process an average of 1,300 tons, comprising 40 per cent of total onion production. Onions for dehydration are cropped in the Central Bekaa over 1,200 ha., yielding very poorly (on the average 13 t/ha as compared to European yields up to 40 t/ha).<sup>58/</sup>

It should not be difficult to increase substantially the yield of onions by introducing improved varieties and by using adequate inputs. As the marketing prospects of the product are quite promising, the increase in the yield of onions resulting in lowering the production cost per unit of production would give an impetus for increasing the processing capacity of onion dehydration plants in the country.

<sup>58/</sup> Research concentrates on onions with the aim to develop high quality seeds, because in 1969/70 the Syrian Government decided to encourage local onion production and forbade export of the bulbs.

/...

### 4. Tomato concentrates and related products

There exist 5 tomato processing lines producing annually from 6,000 tons fresh tomatoes some 2,000 tons concentrates. The natural conditions of Lebanon are particularly favourable for growing tomatoes in different seasons. At present, there is a lot of room for increasing their production by introducing better quality and high yielding varieties. In order to develop the tomato paste production, the area under varieties appropriate for paste production should be extended. Processing of tomatoes near the production sites would be a solution to seasonal surpluses and waste.

### 5. Olive oil industry

Annually, on average, 80 per cent of the olive crop is processed locally into about 10 to 13,000 tons of olive oil. This is about 15,000 tons short of domestic needs. The demand for imported substitutes (imported oil seeds processed locally) has, therefore, increased very fast and it is expected to do so in the near future.<sup>59/</sup>

There exist only two modern processing plants for olive oil. The traditional olive oil mills (close to 700) use ancient methods and have a low production capacity. The remedy to face the competition of the imported substitution products is to establish modern and national processing plants producing very fine oils. This can only be realized in relatively dynamic regions with a dense olive cultivation. Also greater integration of marketing activities is necessary and marketing should be geared to the latest techniques. Largely marketed brands of uniform high quality oils should be promoted.

<sup>59/</sup> H. Hajje, Ministry of Agriculture - L'oléiculture libanaise et ses problèmes économiques, Beirut, 1971, p. 11 (internal note).

/...

6. Other industrialization possibilities

The over supply of apples could be processed into apple juice - the cultivated varieties are perfectly suitable for processing. Problems to overcome are a regular assured supply, a too high production cost, and a "reluctance" of the consumer towards apple juice. Also considerable possibilities exist in processing various other fruit juices, for instance tomato juice, and juices processed from tropical fruits. Also good prospects exist for processing of apricots, peaches, strawberries and other berries into various products, but an adequate supply of quality products is lacking. Also possibilities for conservation of certain vegetables exist.

In summary, it may be said that there are a number of possibilities for extending the production of existing agro-industries and also for starting new ventures. Of course, the new ventures need to be carefully examined, technically as well as economically. The main problems of the agro-industries are the lack of adequate basic produce, timely supplies, and an inappropriate quality (in some cases). Thus, the communication between farmers and industrialists should be improved to remove these obstacles in the way of further industrialization of the agricultural products. The Government should play a leading role in closing the gap in the exchange of information between farmers and industry owners. The establishment of a Development Bank is expected to give impetus to the development of agro-industries in the future.

/...

V. MARKETING, PRICING AND TRADE OF THE AGRICULTURAL PRODUCTION

A. General

1. Marketing

There are four main wholesale markets for fruits and vegetables in the country. They are located in Beirut, Tripoli, Saida and Zahle. There are no specific wholesale markets for other agricultural produce, namely cereals and livestock products. These are marketed through contractors, commission agents, etc. who have their stores and shops in various towns.

A large proportion of the marketable surplus of fruits and vegetables enters the wholesale markets and only a small portion is directly sold by producers at stands along highways and through internal distribution agents. The Beirut wholesale market is the dominant one, but the Tripoli, Saida and Zahle (in summer) wholesale markets are also of importance.<sup>60/</sup>

The Beirut wholesale market covers the whole country for the produce received and an area of 40 km. surrounding Beirut for the produce sold. This market supplies more than one million consumers and is at the same time an important shipping point for exports.

The market area is overcrowded; there is difficult access and internal transportation and complete saturation with produce; there is inefficient packing and grading of produce and no cold storage is available for it. Sanitary conditions are poor and a market administration does not exist; etc.... On the whole, the actual market does not provide the modern elementary equipment for marketing facilities and sanitation and operates on a very low level of efficiency.

There is practically no formal protection provided to producers against illegal practices in the market. The operational methods adopted are described <sup>61/</sup> as traditional and anachronistic. But despite that, business

<sup>60/</sup> See in this connection: R. Sadaka - B. Bojilov: Wholesale Markets for Agricultural Produce in Lebanon, A-EC No.7b, Ministry of agriculture, September, 1967. It was calculated that in 1966 the Beirut market had an annual turnover of 370,000 tons, the Tripoli market 126,000 tons and the Saida market 15,500 tons.

<sup>61/</sup> R. Sadaka - D. Bojilov: Wholesale Markets for Agricultural Produce in Lebanon op.cit.

/ ...

runs without unusual difficulties. The main driving force in the market is trust and faith generated by traditional forces among the producers and market agents. Also the ability of the Lebanese as traders and merchants helps to maintain efficiency under the prevailing conditions. The same conditions prevail on the Tripoli wholesale market, which is an assembly market for Beirut and a terminal centre market for North Lebanon, and on the other wholesale markets.

2. Pricing

As can be seen from appendix table 21, prices of agricultural and other products have been fairly constant until the mid-sixties, since then a moderately upward trend set in, which became more pronounced in 1969.

(1)  $y = - 28,57 + 1,16X_1 + 0,40X_2$  R 0,98

(2)  $y = - 26,77 + 0,77X_1 + 0,42X_2$  R 0,71

where y = average annual wholesale price index  
in (1) for all goods  
(2) for foodstuffs

X<sub>1</sub> = years 1 .....14 (1965 - 1969)

X<sub>2</sub> = average annual exchange rate of the dollar in P.L.

The rate of increase in the wholesale price index turns to be 1.18 point annually, if the exchange rate of the dollar remains constant. But, there have been considerable variations in the exchange rate of the dollar and the impact of these changes on the wholesale price index is estimated as a 0.40 point increase in the wholesale price index, corresponding to a 1 P.L. increase in the exchange rate of the dollar, and vice versa. Therefore, the influence of the money market on the level of prices in the country is quite considerable.

In general, prices of agricultural commodities fluctuate considerably over the marketing season (appendix table 22). For most products, there occurs a period of market flooding during which prices fall down to the lowest point. During the period of falling prices, farm gate prices decrease proportionately more than the retail prices as the marketing margins tend to remain constant. On the contrary, in the period of rising prices, the rise in farm gate prices lags behind the increase in retail prices, thus depriving the producers of the

/ ...

full benefit of increasing prices. It bears mention that, except the price support programmes for cereals, sugar-beet, tobacco, sunflower and silk, there is no direct intervention of the government in the manipulation of prices of other agricultural commodities.

3. Trade

Trade in agricultural products (food and non-food products) accounts for an important part of total trade, as indicated in tables 34 and 35.

Table 34: Imports and Exports of Food Products and Agricultural Products (food and non-food products) (SITC) 1966-1970 - (tons)

	Food products		Agricultural products	
	Imports	Exports	Imports	Exports
1966	742.022	375.157	1.053.282	425.869
1967	821.101	413.740	998.178	479.385
1968	745.761	467.961	1.123.881	544.369
1969	875.993	421.571	1.193.872	529.809
1970	1.023.461	418.707	1.379.263	523.881

Source: compiled by UNESOB on the basis of the national trade statistics, 1965-70.

The tonnage of imported agricultural products increased regularly, except for 1967. The tonnage of exported agricultural products showed a decrease in 1969 and 1970, mainly because of bad harvests in these years.

/ ...

Table 35: Share of Trade in Food and Agricultural Products in Total Trade (in value terms)(SITC): 1956/60 - 1970 (percentages)

	Share of food products in total trade - value terms		Share of agricultural trade in total trade-value terms	
	Imports	Exports	Imports	Exports
1956/60	23.5	40.6	31.8	55.2
1961	20.1	34.6	27.0	46.8
1962	23.4	40.0	31.7	56.8
1963	25.6	38.1	34.3	57.2
1964	21.3	37.6	29.5	54.8
1965	23.7	34.2	31.6	46.6
1966	20.8	33.1	28.5	46.3
1967	23.2	32.2	30.5	45.3
1968	21.6	32.7	28.0	42.9
1969	19.5	27.6	25.8	40.1
1970	19.5	25.8	25.2	36.6

Source: Computed by UNESOB on the basis of Appendix 24.

Notwithstanding the increase in the volume of exports of agricultural commodities, the share of export earnings from these commodities in total export earnings decreased during the period under review from 55,2 in 1956/60 to 36,3 per cent in 1970. The low share of agricultural export earnings to total export earnings in 1969 and in 1970 is due to a decrease of exported quantities and low export prices of agricultural commodities and a rapid expansion of industrial exports in 1969/70. During the period under review, the import bill for agricultural commodities relative to the total import bill decreased slightly because imports of industrial goods rose faster than imports of agricultural goods.

It should be pointed out that food products form by far the greater part of agricultural exports and imports (70 and 75 per cent in 1969 and 1970 respectively).<sup>62/</sup> As can be seen from Appendix tables 25 and 26, trade in

<sup>62/</sup> In the following pages only trade in food products is considered.

products is characterized by a strong concentration on a few items. Imports consist mainly of live animals, grains and grain preparations, dairy products, fresh vegetables, oils and oil-seeds. On the other hand, 75 per cent of exports consist of fresh fruits, fresh vegetables and eggs. In principle, imports of agricultural commodities are free. However, a close look reveals a careful protection of the domestic production; this is particularly the case for vegetables, fruits, and poultry products. The greater part of the trade operations are with the Arab countries <sup>63/</sup>

B. Commodity groups

1. Cereals and pulses

The Cereals and Beets Office operates a price support programme for wheat and barley since 1966 and for corn since 1970. Up till now only the wheat programme has been effective. About 15 to 20 per cent of total production is purchased annually by the Cereals and Beets Office at a price about 5 to 10 per cent higher than the local price and a quarter of the production is directly sold by farmers to local dealers immediately after harvest, because of lack of adequate storage facilities and a pressing need for money. The greater part of the production, thus, goes to domestic requirements, to the processing of "bourghoul" and to seed.

As can be seen from table 36, imports of wheat, and cereals in general, increased considerably during the period under review, mainly as a consequence of declining production and fast rising demand.

Table 36: Percentage change in imports of grains during the period 1956/58 - 1967/69 (gross weight in tons).

	1956-1958	1967-1969	Percentage change
Wheat and wheat flour	192.467	276.500	43,7
Rice	14.133	24.123	68,3
Barley	24.433	57.633	135,8
Corn (Maize)	1.133	66.860	5,801,1
Sorghum	8.433	5.400	- 36,0
Total	240.779	430.516	78.8

<sup>63/</sup> There exist special trade agreements between all Arab countries and Lebanon. Furthermore it should be pointed out that Lebanon has not yet decided upon signing the Arab Economic Unity Agreement, a prerequisite for joining the Arab Common Market. The ACM now has four members: The Egyptian Arab Republic, Iraq, Jordan and the Syrian Arab Republic.

On average, over 80 per cent of the net supply of wheat and wheat flour were imported (in 1967-69, 88 per cent). Imports of barley and, particularly, corn increased considerably during the period under review. This was due to decreasing domestic production and accelerated development of the poultry and livestock sectors. In 1967-69, an average of LL.95.3 million was spent on imports of grains and grain preparations (Appendix table 24); this amount represented nearly 25 per cent of the value of imported agricultural products in these years.

Pulses are generally sold through the same marketing channels as wheat and barley. Prices followed the same trend as grain prices, the increase in prices after 1967 was more pronounced, however.

2. Industrial crops.

National sugar production was set up by the Lebanese Government at the end of the fifties in order to diminish the dependency of the country on imports of sugar. Up to 1969, most of the production has been grown by contract-growers, which got priority over others for processing their produce at country's only processing plant at Anjar. Since the establishment of the sugar beet cooperative in September 1968 in the Bekaa, production is sent to the plant through the cooperative. After processing, the cooperative sells the refined sugar to the Cereals and Sugar Beet Office, which markets the sugar. The price paid to the farmers is a support price.<sup>64/</sup> As indicated in Table the import of sugar increased at a much slower rate than the net supply, due to the rapid expansion of domestic production.

Tobacco production is processed and prices and planted area are fixed by the Régie de Tabacs et Tombacs, a government monopoly. The price paid for this crop is also a support price. The sunflower harvest is bought at an incentive price of 75 P.L. per kilogram while the prevailing market price ranges around 40 P.L. The marketing operations are performed by the Cereals and Sugarbeet Office.

3. Vegetables

The surplus production of the small producer is generally channelled through the local buyer or dealer who sells to wholesalers, while large-scale producers sell their produce directly in wholesale markets. It should be

<sup>64/</sup> Prices and marketing of sugar beet (and tobacco and sunflower) will also be discussed in chapter VI.

mentioned here that often, because of lack of production credit, many (small) producers are tied to particular agencies or dealers who financed their production. This could lead to various unfair practices (overpriced fertilizers or other inputs, underpriced deliveries, etc.) which would ultimately result in a drop of revenue for the farmer. The commission charged from the producer is five per cent of the wholesale price for vegetables and fruits marketed.<sup>65/</sup>

In general, prices of vegetables followed a regularly increasing trend, with prices of perishable vegetables increasing faster than prices of non-perishable crops. For beans and peas supply was short of demand and for various other vegetables there were regular price increases because of good demand prospects.

Table 37. Trend in wholesale prices of some vegetables on the Beirut market, 1956-1969.

		R
Green peas	$y = 44,36 + 2,25t$	0,87
Green beans	$y = 54,40 + 3,15t$	0,86
Green broad beans	$y = 19,30 + 3,09t$	0,75
Green onions	$y = 15,51 + 1,01t$	0,67
Dry white onions	$y = 28,37 + 1,19t$	0,73
Dry red onions	$y = 13,21 + 0,65t$	0,63
Eggplant	$y = 17,64 + 2,09t$	0,80
Squash	$y = 34,49 + 1,86t$	0,71
Melons	$y = 16,31 + 1,30t$	0,76

Where  $y$  = average annual wholesale price in P.L. per Kg.  
 $t$  = years 1 .....14

In general, prices of vegetables are high in winter (especially January through March) and lower in summer (July through September). However, vegetables which can be stored do not experience as wide price fluctuations as those which are perishable (see Appendix table 22).

<sup>65/</sup> At the end of January 1972 it was decided to increase the commission to 7 per cent. This measure raised serious opposition among farmers in the country.

/ ...

/ ...



On average, retail prices are about 40 per cent higher than wholesale prices. But the retail prices for the perishable vegetables (tomatoes, egg-plant, squash, cucumber, green onions, etc.) are 200 to 250 per cent higher than their farm-gate prices. The difference between retail and farm-gate price of semi-perishable vegetables (potatoes, green beans) is comparatively less - the retail price in these cases is 100 to 140 per cent higher than the farm-gate price.<sup>65/</sup> The wide difference between the retail and farm-gate prices calls for effecting appropriate improvements in the marketing system which would be beneficial to purchasers as well as consumers.

The domestic production of vegetables is carefully protected, since the government proclaimed a decree in 1959 saying that, in order to protect the incomes of Lebanese farmers, imports of vegetables (and fruits) would be subjected to an import licence. During the months of harvesting and marketing of the domestic crops, no import licences are granted, unless there is a serious shortage on the national market. This system provided effective protection; for instance, in the case of onions and potatoes, which previously were imported in large quantities and for which there exists a considerable export surplus at present.

Fresh and dried vegetables accounted for about eight per cent of the total value of imports of food products, while the export value was about 22 per cent of total food exports up to 1966. Since 1967, the export value of vegetables dropped to around 15 per cent of total value of foodstuffs exported because the tonnage exported dropped as a consequence of bad harvests in the late sixties. There exist great possibilities to encourage production of high quality products and early season and out-of-season vegetables and to promote their exports to large and still growing markets. Also there are good possibilities to boost production and to reduce imports of various vegetables, for instance melons, watermelons, tomatoes, onions, etc.

<sup>66/</sup> Some analysis on marketing margins was tried on the basis of material available: price statistics from the Ministry of Agriculture for 1964-1969. Wholesale prices are taken from the Beirut wholesale market and retail prices from the Souk Nourieh (Beirut). We are fully aware of the fact that from this data-base at the best some general trends and indications can be derived - see Appendix table 23.

#### 4. Fruit

Much of what has been said concerning vegetables is equally true for fruit. Apples and citrus are the most important fruits. Most grower of these fruits sell their standing crop to merchants and contractors who pay a lump sum for the whole orchard or else sell it on per kilogram basis.

These contractors and merchants then sell the produce in the wholesale markets or directly to exporters. Some export the fruits themselves. Apples are sorted and packed in boxes at the orchard. More than half of the harvest has to be kept in refrigerated storages.

Most of the production of table olives is marketed through various and little organized channels: part of the crop is sold to traders as fresh and prepared by the consumers, another part is prepared and marketed by wholesaler-artisans. There is also some consumption by farmers themselves. However, it should be recalled that 80 per cent of the annual production of olives is processed into oil. There exist in the country numerous small olive-mills using ancient techniques.

In general, prices of fruits have been fluctuating until the mid-sixties, since then the prices showed a definite upward trend. However, prices of apples, contrary to the general rising tendency in prices of fruits, showed a declining trend. But in the recent past their prices seem to have stabilized. Prices of oranges increased moderately during the period under review. However, the sweet or Halou variety much liked and somewhat higher priced than other varieties, increased fast in price. Mandarins showed a large price increase during the period under review, while lemons decreased in price, because of substantial increases in yields and sufficient supply. Prices of grapes increased substantially in the beginning of the sixties, but declined in the late sixties as the market became saturated. Prices of strawberries increased substantially over the period because production did not keep up with the fast growing demand. Prices of olives fluctuated according to good or bad harvests. On the average olive prices increased slightly since 1967. (Appendix table 21).

/ ...

/ ...

Table 38. Trend in wholesale prices of some fruits on the Beirut wholesale market, 1956-1969

		R
Apples, starking	$y = 93,83 - 3,42t$	- 0,79
Apples, golden delicious	$y = 89,95 - 3,27t$	- 0,70
Oranges, sweet	$y = 33,44 + 1,99t$	0,88
Mandarins, youssef affandi	$y = 46,49 + 2,67t$	0,86
Bananas	$y = 49,61 + 1,41t$	0,75

Where  $y$  = average annual wholesale price in p.l. per kilogram  
 $t$  = years 1. ....14.

For most fruits, the retail price is 30 to 40 per cent higher than the wholesale price, while the retail price for most perishable and short-season fruit is 100 to 150 per cent higher than the farm-gate price. This difference is somewhat smaller for strawberries (high value) and bananas and lemons (low marketing costs), and larger for apples (storage costs) and grapes (delicacy).

Fresh fruit and nuts are by far the most important export item among agricultural products. 55 per cent of the export earnings of food products came from fruits in 1961-63; in 1967-69, the share of fruits was still 45.8 per cent. On the other hand, during the same period, imports represented, on average, only 5 per cent of the value of food products imported. In recent years (1969) citrus fruit accounted for 45-55 per cent of all fruit exported, followed by apples 35-45 per cent and other fruit (mainly bananas and grapes) 10 per cent. On the average, 90 per cent of the fruit exports go towards Arab countries.

Table 39. Percentage change in exports of main fruits between 1956-58 and 1967-69 (tons; percentages).

	Average 1956/58	Average 1967/69	Percentage change 1956/58-
Total fruits	90.933	255.341	180.8
Citrus	52.233	127.291	145.0
Apples	20.233	103.754	412.7
Bananas	12.867	7.746	- 39.8
Other fruits	5.600	15.870	283.4

Source: Computed by UNESCB on the basis of the trade statistics in Statistiques du Commerce Extérieur, 1960-1969.

During the period under review, about half of total citrus production was exported. Up to the beginning of the sixties 60 per cent and since then 75 per cent of the total apple crop was exported. The share of the apple crops for export will continue to increase in future as per capita consumption is already relatively high. At present, grape imports, mostly grapes for industrial use, and exports of consumption grapes, outweigh each other (4,000-5,000 tons).

It should be recalled here that also the domestic fruit production is effectively protected. Import of fruits requires an import licence. However, no import licences are granted during the marketing season of domestic fruits. Imports from non-Arab countries are subjected to a 25 per cent ad valorem tax. Consequently, only relatively small quantities of imports - mainly early season fruits - compete with local fruits.

It should be remarked that the Fruit Office promotes exports of Lebanese Fruit through exhibits and displays of quality fruit in both Arab and European markets, and through quality control and grade conformity. The Fruit Office also initiated some commercial activities (trial shipments to new markets, participation in cold stores, support to small growers in years of over-production, etc.) Unfortunately these undertakings encountered various difficulties.

#### 5. Poultry products

Eggs and poultry are for the greater part marketed through wholesalers and two large cooperatives (in the Bekaa). Broilers are marketed through distributors and wholesalers against a fixed charge. In the villages and small towns a good part of the broilers is sold alive as there is a general preference for freshly-killed meat. At present there are three large-scale poultry dressing plants in operation. The great majority of the dressing plants are small-scale units, however. Eggs and poultry of small-scale farms are brought to shops or collectors by farmers themselves. The recent wave of vertical integration among hatcheries, feeding industries and broiler and layer farms should lead to a more efficient marketing system and is expected to mitigate the instability of prices.

/ ...

On the whole, prices have experienced a downward tendency contrary to a firm upward trend in food prices. Consequently, the profits decreased because of a price-cost squeeze. However, improvements in efficiency of production kept the industry going. There are wide fluctuations in the monthly prices of eggs, which have a general tendency to fall from February - March through June - July. Also it is worth noting that there is a strong positive correlation between the trend in monthly exports and the average monthly prices of table eggs. Therefore the quantity of eggs exported has a strong influence on the price of table eggs.

Table 40. Trend in Average Annual Wholesale and Retail Prices of Table Eggs, 1956-1969.

		R
Wholesale	$y = 12,48 - 0,19t$	- 0,76
Retail	$y = 13,69 - 0,18t$	- 0,74

Where y = average annual wholesale (retail) price of table eggs in P.L. per piece  
t = years, 1 .....14

Source: computed on the basis of price statistics in, Ministère du Plan, Recueil de Statistiques Libanaises, 1969.

During the period under review the broiler industry was characterised by a downward price trend and wide monthly variation in the supply and price of broilers. The prices have a tendency to drop in spring and early summer when the climate is favourable for broiler production and to rise in late autumn and winter. Small farmers can enter or withdraw from broiler production without much difficulty as practically no investments are made by them and broilers are marketed at the age of 6 to 8 weeks. Thus, apart from the regular producers of broilers, a group of farmers starts producing broilers by scouring chicks during the period of high prices. At that moment also some farmers who generally produce eggs only start producing broilers. These two groups who enter temporarily into broiler production to take advantage of high prices undoubtedly check to some extent the increase in

/ ...

prices in the period of scarce supplies. When the prices start falling because of overproduction these two groups start dumping their production as they have no storage facilities and are in need of money. This accentuates the fall in broiler prices. As a consequence of the low prices, the temporary entrants into broiler production leave production and regular producers as well curtail their production. This brings about a period of short supply and increase in prices. Because of high prices prevailing during this period, temporary producers are again tempted to enter into business and regular producers start expanding their production as well; consequently a new period of oversupply and low prices follows. Because of these seasonal variations, the broiler industry faces a great instability.

Marketing margins for eggs between the farm-gate and retailer usually do not exceed 20 per cent of the retail price. Distributors and wholesalers of broilers take a profit between 10 to 15 P.L. per dressed broiler, while retailers get 20 to 25 P.L. per bird.

Imports of eggs were drastically reduced in 1963 as they were subjected to a duty of 8 P.L. per egg. Since 1969 imports of eggs are forbidden. The value of egg exports in the value of food products exported increased from 3,0 per cent in 1961-63 to 15,2 per cent in 1967-69. At present, half of the production is exported, the bulk of it to Arab countries. Lebanese eggs have gained a good reputation on Arab markets for their superior quality, in particular for their relative freshness as compared to competing eggs from East European countries.<sup>57/</sup>

No broilers were imported since 1964 - imports require an import licence and pay an 18 per cent ad valorem tax. Broiler exports are, on average, less than 5.0 per cent of production. There is a wide market for broilers in the Arab countries; however, Lebanese exporters were outbid as they could not supply high quality frozen broilers at a price low enough to compete with the subsidized broiler production of the EEC countries or East European countries. However, it may be pointed out that the Lebanese broiler producers are as efficient as their competitors, but are put at a disadvantage because they have to compete with broilers sold at subsidized prices.

<sup>57/</sup> Since 10 March 1970, exports are subject to an export licence (Decree No. 1/62) to guarantee quality and grade conformity.

/ ...

6. Meat production

Besides large numbers of imported animals, local livestock is slaughtered in the Beirut Municipal slaughter-house. The meat is marketed through wholesalers and retailers. Also slaughtering takes place in other market towns along traditional methods. It should be noted that no or very little fattening of sheep or cattle takes place before slaughtering because the cost is generally high. The per capita red meat availability decreased during the period under review. This is reflected in steady increasing meat prices. Prices of red meat are expected to rise more in the future because the greater part of the domestic demand will be met by imports, which will become extensive because of an upward trend in world meat prices. It is significant to add that recently, Turkey, the main supplier of live animals, decided to stop exports because of a reduction in the number of its livestock.

Table 41. Price trend of average annual wholesale and retail prices of red meat in Beirut, 1956-1969.

Wholesale prices		R
Cow meat with bones	$y = 134,47 + 9,43t$	0,87
Sheep meat with bones	$y = 229,93 + 7,48t$	0,73
Retail prices		
Sheep meat without bones	$y = 469,14 + 12,77t$	0,78

Where y = average annual wholesale (retail) price in Lebanese Piastres per kg.  
t = years 1 ....14 (1956-69)

Source: computed by the United Nations Economic and Social Office in Beirut on the basis of price statistics in Ministère du Plan, Recueil de Statistiques Libanaises, 1969.

As was noted in chapter IV imports of live animals are very important (see tables 31 and 42) and constitute a heavy financial burden for the country. They represented 19,0 per cent of the value of imported food products in 1961- and their share rose to 23,0 per cent in 1967-69 (Appendix Table 24). It is striking fact that the annual number of imported cattle and sheep by far exceeds the total cattle and sheep population, respectively (table 42). Finally, it should be recalled here that an increasing part of the red meat production - over 80 per cent in recent years - comes from imported animals.

/ ...

Table 42. Imported animals for Slaughtering as a Percentage of Total Local Animal Population, 1956-58 and 1967-69 (000 heads - percentages)

	Average 1956-58 (000 heads)	Imported animals as a percentage of the local livestock	Average 1967-69 (000 heads)	Imported animals as a percentage of local live- stock
<u>Cattle</u>				
Imported	49.0		115.3	
Local population	81.0	60.4	89.7	128.5
<u>Sheep</u>				
Imported	307.6		522.0	
Local population	72.3	425.4	203.3	256.7
<u>Goats</u>				
Imported	55.3		90.6	
Local population	427.0	13.0	379.0	23.9

Source: Computed by UNESOB on the basis of table 31 and appendix table 16.

7. Milk

In Beirut and the other market towns there exist several dairy plants of various sizes. These plants mainly reconstitute fresh milk from milk powder. In the central Bekaa several small dairy plants transform locally produced fresh milk into milk products. Still much of the marketing and processing of milk and milk products is done along traditional and artisanal methods. Characteristically, the preference of the Lebanese is for consumption of fresh milk in the form of milk products - white cheese, laban, labneh - rather than in liquid form.<sup>68/</sup>

The government (Animal Production Office) tries to stimulate and improve the marketing of milk through the set-up of milk collecting centres (Tripoli, Tyre), stricter quality and hygiene control, assuring a remunerative price, securing outlets for fresh milk and controlling of imports of milk powder products (imports of milk - solid or other - and cheese are subject to an import tax).

<sup>68/</sup> It is of interest to point out that 60,0 per cent of the fresh raw milk produced in the country is sold in the area of production, on the average at higher prices than the milk which is marketed outside the rural areas; Survey on the number of milk cows in Lebanon, APO, Ministry of Agriculture, p.7.

/ ...

Since mid 1971, farmers are guaranteed a minimum price which varies between 42 and 45 Lebanese piastres, depending on the place of delivery. Milk plants and collecting centres have to buy all fresh milk available against the prices set by the Animal Production Office, if they want to get import licences for milk powder packed in containers of over 2.5 kgs. Prices of fresh milk on the retail market were depressed up to 1970 because of the low price of reconstituted fresh milk (25 Lebanese piastres per litre), which is less than half the price of fresh milk. It is estimated that over two-thirds of the fresh milk consumption is reconstituted from milk powder. The preferential use of milk powder in the manufacture of milk products is primarily based on economic considerations. Since 1971 a period of scarcity of milk on the world market started. As a result, the wide difference between the prices of reconstituted and fresh milk has considerably narrowed. This has already given an impetus to increase local milk production, especially through importing exotic breeds.

It should be noted that large quantities of milk and milk products are imported and put a heavy strain on the limited financial resources of the country. In 1967-69 imports of milk and milk products were the double of the local production. During the past decade, imports of dairy products accounted for 8 to 10 per cent of the value of imported food products. During the period under review the import of powdered milk showed a sharp increase.

#### C. Measures for improvement

a) There is an imperative need for building a modern wholesale market for fruit and vegetables. Consideration should also be given to provide wholesale marketing facilities for other agricultural commodities, namely cereals and livestock products.

b) The price spreads between the farm-gate and retail prices are generally high; this is especially true for vegetables and fruits. Reduction of these price spreads to reasonable levels should be one of the important aims of measures to be undertaken to improve the marketing efficiency.

/ ...

c) A number of serious problems in marketing are caused by political upheavals in the region, which lead to temporary closure of borders between countries in the region or cessation of imports from certain countries. As the bulk of agricultural exports of Lebanon is composed of perishable and semi-perishable goods and is exported to the countries in the region, there occur recurrent disturbances in trade which lead to considerable wastage in the agricultural produce and dumping on the internal market of produce which could have been exported. In order to create flexibility in the exports, it would be worthwhile to study the possibilities of diversifying the exports to other countries and of processing some of the produce for internal demand and export.

d) At present, there is no central marketing organization responsible for identifying the marketing problems, internal as well as external, to detect interrelationships among various problems and causes thereof, and to offer integrated solutions for these problems. For a country like Lebanon, exporting a considerable proportion of the agricultural produce, such an organization is a necessity. Contrary to the present system of attempting to solve marketing problems when they have actually occurred through piecemeal and temporary measures - as in the case of apples and eggs - the suggested central organization should study in advance production developments and external marketing possibilities and should make reasonably accurate estimates of prices. Special attempts should also be made by this organization to make medium and long term contracts for exports with the countries in the region and other countries to spare the farmers from the uncertainty and hazards caused by political conditions rather than economic forces. In short, the external marketing problems of the agricultural produce are volatile and dynamic and accordingly the suggested central marketing organization should be provided with adequate technical and financial resources to cope efficiently with these problems.

e) As substantial quantities of agricultural produce are exported, the future demand for these exported commodities in the recipient countries should be carefully studied so as to enable the farmers to change their production plans and marketing schedules accordingly.

/ ...

f) Cultivation of vegetables under cover to secure early or out-of-season production when prices are high seems to be a good possibility. For instance, in winter many crops can be grown under cover and exported to markets in Eastern and Western Europe, provided proper packing and preservation and fast shipments of the products are done (e.g. winter crops of cucumbers, lettuce, radish, asparagus, ...). Also there exist good prospects for early season tomatoes, squash and eggplant. Prices are high at that time of the year.

g) As far as fruits are concerned, efforts should be directed to promote and increase the availability of late season oranges (Valencia late), but also considerable profits can be made if more oranges were harvested at the end of the "normal" season (Washington Navel, Moghrabi) before Valencia comes on the market. Prices are very high at that time of the year. Provided a small part of the apple crop is processed and an adequate and efficient organization and proper marketing of the rest of the crop, there is no reason whatsoever which indicates that serious marketing problems for apples will arise.<sup>69/</sup> Production development of grapes should concentrate on early season (before 15 June) and late varieties because there exists a strong demand for these products in both Arab and European markets. Also good marketing possibilities exist for stone fruits. High quality products have a strong demand.

h) The development of the broiler and layer industry in Arab countries will increase the demand for Lebanese hatching eggs. The demand for table eggs in Lebanon and the Near East will remain strong, as for some time to come the area is expected to remain a large deficit area for eggs. However, stiffer competition from Eastern countries is to be expected in the future. Fast shipment of high-quality eggs at low prices will be increasingly a necessity for successful marketing. In the future the Lebanese broiler industry could expand its sales on the domestic and foreign markets. However, as production of European competitors is subsidized, expansion of the foreign market is hardly possible unless an export subsidy is granted to the industry. Despite the large

<sup>69/</sup> A good part of the actual difficulties are due to the fact that Arab countries in times of political crises almost always stop imports from the countries concerned.

/ ...

increases in broiler consumption on the domestic market in the past there is still considerable room for expansion.

i) Urgent steps should be taken to improve livestock and meat marketing and cold storage. Vast improvements can be made throughout the whole marketing chain from livestock owner to consumer (hygienic arrangements, efficient abattoir units, lack of grading and pricing). A programme for livestock development should give fair attention to the processing and marketing of livestock and livestock products. An aspect that requires particular attention and further detailed study is the introduction of the grading of meat. Furthermore, help should be provided to establish modern facilities for the most efficient processing and utilization of slaughterstock by-products.

j) As far as marketing of milk and milk products is concerned, large improvements can be made in the organization of marketing (milk collecting, transport, distribution) and the processing of milk and milk products. Efforts should be made to promote the quality of the dairy produce and assure adequate hygienic conditions throughout the processing and marketing stages.

k) The absence of an integrated price policy<sup>70/</sup> for agricultural commodities is one of the major weaknesses in the marketing and pricing systems in the country. There are widespread between farm-gate and consumer prices for most of the commodities, rising production costs generally decrease profits of farmers, while marketing margins for wholesalers and retailers tend to remain constant; there is no marketing news service worth mentioning and thus farmers have to base their marketing decisions on insufficient and inadequate information etc. Hence, there is an imperative need to evolve an integrated price policy ensuring reasonable prices for agricultural commodities and keeping the prices of inputs at fair levels. An important element of this policy should be the establishment of a market news and information service for guiding farmers to take rational production and marketing decisions.

<sup>70/</sup> Price subsidies are given for some agricultural commodities, see Chapter VI.

VI. PRICE SUPPORT AND AGRICULTURAL SUBSIDY PROGRAMMES

Besides the fact that the domestic agricultural production is largely protected from competition of imports by administrative restrictions and tariffs, the production of some agricultural commodities is supported by special prices and subsidy programmes. It will be of interest to critically examine the impact of these programmes on the production pattern and incomes of farmers and to investigate as well their welfare implications.

A. Sugar

The refined sugar consumed in the country is supplied from three different sources (1) imported raw sugar processed by three refineries located in Lebanon (2) refined sugar imported as such and (3) refined sugar produced from processing sugarbeets grown in the Bekaa valley. The average relative importance of these sources in the total sugar supply of the country for 1961 to 1970 is as under:

Table 43. Average annual supply of refined sugar during the period 1961/1965 and 1966/1970 (tons; percentage)

Source	Quantity		Per cent	
	1961/65	1966/70	1961/65	1966/70
Raw sugar imported, converted into refined sugar	31,134	30,906	61.7	64.7
Refined Sugar Imported	13,816	5,936	27.4	12.4
Produced locally	5,497	10,958	10.9	22.9
Total supply	50,447	47,800	100.0	100.0

Source: computed by UNESOB on the basis of national sources.

Except for an average of 56.1 tons which were exported annually during the period 1961-70, the total supply of refined sugar was available for local consumption. As the stocks carried forward annually are not known, the quantity available for annual consumption can, on average, be taken as the average annual consumption.

/...

During the period 1961-70, the imports of raw sugar remained more or less the same, while imports of refined sugar decreased substantially. Noteworthy is the fact that the white sugar produced from sugarbeet doubled between 1961-65 and 1966-70. Consequently, its share in the total supply of refined sugar increased from 10.9 per cent in 1961-65 to 22.9 per cent in the period 1966-70.

The domestic production of white sugar from sugarbeets is protected by an import duty and a financial tax, levied by the Cereals and Sugarbeet Office on imported raw and refined sugar. In the past, these taxes were frequently adjusted in accordance with the international prices of sugar and the wholesale price for refined sugar fixed by the government. The level of these taxes was in September 1971 as follows:

	Raw Sugar, per Ton in L.L.	Refined Sugar Per ton in L.L.
Import Duty	30	90
Financial Tax	14	16
Beirut Municipality Tax (ad valorem)	3 per cent of CIF Value	3 per cent of CIF value

It would be interesting to derive the 1970 wholesale price of sugar produced from sugarbeets grown in the country:

The price received by the cooperative for cleaned sugarbeets delivered at the factory was L.L.60.- per ton of sugarbeets<sup>71/</sup>.

Estimated Cost of Production of One Ton of Refined Sugar From Sugarbeets

	LL. per ton refined sugar
Cost of 8,330 kg. of sugarbeets needed for the production of one ton of white sugar	499.8
Cost of processing of 8,330 kg. of sugarbeets at the rate of LL.25 per ton as received by the factory	208.3
Cost of storage of white sugar as paid by the co-operative	17.1
Total	725.2

<sup>71/</sup>LL.59.0 were given in cash and LL.1.0 in kind (insecticides) to the members of the cooperative.

/...

In 1970, the Cereals and Sugarbeet Office bought from the cooperative white sugar at the price of LL.730 per ton and sold it to wholesalers at LL.700 a ton, a price which is, more or less, in line with the local prices of imported white sugar and refined sugar manufactured from imported raw sugar. It may be noted that the cooperative society earned profit at the rate of LL.5.- per ton of refined sugar (LL.730 - 725) after paying the price of the sugarbeet to the farmers and costs of processing and storage to the factory.

The sugarbeet factory, in addition to processing the sugarbeets at a rate of LL.25 per ton, retained molasses and dry pulp. These by-products form 4.5 and 5 per cent respectively of the total weight of sugarbeet tubers. The total value of these by-products per ton of refined sugar manufactured by the factory is estimated at LL.80. The sugarbeet factory thus received for processing costs and profit, LL.288.3 (208.3 + 80) per ton of white sugar.

The CIF value per ton of refined sugar imported in 1970 was LL.270 and its average CIF value was LL.229 for the period 1965 to 1969. The imported refined sugar is generally of a better quality and is sold on the market at a premium of LL.20 to 25 per ton as compared with the locally manufactured refined sugar.

Remarkably is the fact that, not to mention the cost of production of sugarbeets, the processing cost of refined sugar from sugarbeets, i.e. LL.288 per ton, was by LL.18 higher than the CIF cost of imported refined sugar, i.e. LL.270 per ton in 1970; the total loss for 12,047 tons of white sugar produced from sugarbeets worked out to be LL.0.216 million. Thus the value of the basic material (sugarbeet tubers)- LL 500 - required for manufacturing one ton of white sugar, also constituted a loss for this enterprise when international prices of refined sugar are considered. The loss to the Government on this account is estimated at LL. 6 million in 1970.<sup>71/</sup>

<sup>71/</sup>The loss, on average, comes to about LL. 4 million annually during the period 1961 to 1970, and about 0.8 million annually in 1959 and 1960. The total loss from 1959 to 1970 accumulates to over LL.40.0 million.

/...

In addition, there was a loss of about LL.0.4 million incurred in 1970 by the Cereals and Sugarbeet Office because of the difference (LL.30.0 per ton) in its buying price from the cooperative and selling price to wholesalers. Thus, the total loss to the Government in 1970 on account of the production and processing of sugarbeets and the price differential is estimated at LL.6.6 million.

It needs to be stressed at this stage that the total loss to the Government is not equivalent to the gains of sugarbeet farmers. In order to estimate gains of the farmers, the calculations are made as under for 1970:

Total cost per ha. of sugarbeet	LL. 2,264
Average yield of sugarbeet per ha.	47.5 tons
Average cost per ton of sugarbeet	LL. 47.6
Average gross income per ha.	LL. 2.856
Average net income per ha.	LL.592.--

It should be noted that sugarbeet yield has improved considerably since 1959. It rose from about 25 to 47 tons per ha. between 1959 and 1970. The average net income per ha. was compared to that of 1970, smaller in years of lower yields as in the past the prices of sugarbeet mostly varied between LL.55 to 60 per ton. The average net income in some years was even negative, as for instance in 1962 when the average yield was 30 tons per ha. and the price was LL.55.0 per ton. In that year, the majority of the farmers had a negative net income.<sup>72/</sup> However, the returns to their land, labour and management were mostly positive which kept them growing sugarbeet in later years.

The total average cost of production per ha. of sugarbeet was estimated at LL.2.264,<sup>73/</sup> in 1970. Taking the average yield of beets as 45 tons per ha., the cost comes to LL.50 per ton. As the yield per ha. varied mostly between 30 and 60 tons, the cost per ton consequently ranged between LL.75 and LL.37. The farmers received LL.60 per ton for beets delivered at the factory gate. The actual gains of sugarbeet farmers are approximately one-fourth of the total cost to the Government of this programme, and the remaining three-fourths of this cost cover the cost of production of the crop.

<sup>72/</sup> Institute of Rural Economics, A survey of industrial and commercial aspects of the sugar industry in Lebanon, Beirut, Lebanon, undated.

<sup>73/</sup> On the basis of unpublished cost of production data of the Ministry of Agriculture, 1970.

/...



Table 44. Area, Production and Yield of Sugarbeet from 1959 to 1970 (tons; tons per ha. )

Year	Area ha.	Production of Sugarbeet (tons)	Yield of Sugarbeet (tons per ha)	Production of White Sugar (tons)	Yield of White Sugar per ha. (tons)
1959	500.6	12583.7	25.13	1685.3	0.337
1960	533.5	15296.7	28.67	2286.4	0.429
1961	785.8	21969.6	27.96	3238.3	0.412
1962	868.2	26764.7	30.83	3721.0	0.429
1963	890.1	30300.5	34.04	3947.5	0.443
1964	1774.6	61613.1	34.72	8685.5	0.489
1965	1700.0	57529.8	33.84	7895.0	0.464
1966	2076.5	94887.8	45.70	12503.0	0.602
1967	1823.5	90505.0	49.63	10826.0	0.594
1968	2000.0	83354.8	41.68	9806.8	0.490
1969	2000.0	80068.2	40.03	9608.2	0.480
1970	2111.9	100355.5	47.52	12047.5	0.570

The case for the sugarbeet support programme is largely based on making the country less dependent on imports of sugar (partly self-sufficient), decreasing the foreign exchange cost by curtailing imports and welfare considerations implying a rise in the income of certain farmers.

It should be mentioned in this connexion that the sugarbeet area was 2111 ha. in 1970 (about one per cent of cropped area) and the farmers growing sugarbeet were about 300.<sup>74/</sup> The State would be losing about LL.6.6 million annually in the near future to support sugarbeet growing and manufacturing operations. But these 300 farmers would gain as profit only one fourth of this loss.

<sup>74/</sup>The farmers have got allotments for planting sugarbeet for themselves and their family members; the allotments vary from 600 to 800.

/...

The following policy issues present themselves in this connexion:

1. Whether the efficiency of the manufacturing of white sugar from sugarbeet can be improved.
2. Are there any alternative farm enterprises to sugarbeets which, if followed by farmers, would at least give incomes equivalent to sugarbeet?
3. Are there any alternative farm enterprises which can be adopted by farmers to replace sugarbeet with much less support costs, if any at all, to the Government?

As regards item 1, it may be noted that the sugarbeet factory is old and uses ancient methods. Therefore, its modernization would certainly decrease the cost of processing. It bears mention here that the cooperative society is planning to instal a new factory. But before the sugarbeet area is extended further to supply beets to the proposed factory, the cost to the Government on account of the sugarbeet support programme must be critically examined vis-à-vis other programmes for development. It also needs to be looked into whether the processing cost charged by the sugarbeet factory is reasonable or excessive.

There are no firm data available, but it is understood that considerable areas on which sugarbeet is grown are rented by farmers on a temporary basis from owners who do not directly cultivate these areas by themselves. Sometimes land is only rented by tenant farmers, while in other cases land and water are rented together by them. As in most of these cases the land is rented for a year or for growing sugarbeet only, the tenant farmers grow sugarbeet as this is remunerative to them at support prices. This is one of the main obstacles to substitute sugarbeet with other alternatives requiring a longer period of tenure on land. In fact, the irrigation facilities, the soil and above all the location of the land on which sugarbeet is grown in the Bekaa Valley offer a number of good substitutes to sugarbeet. For example, integrating of livestock production with fodder raising could give substantially better returns than sugarbeet sold at support prices; intensive vegetable production is another more remunerative venture than sugarbeet; hybrid maize replacing sugarbeet in rotations could also be advantageous; etc.. In order to introduce a programme to substitute sugarbeet by at least equally remunerative enterprises, the basic problem of land tenure - tenant farmers renting the land only for a year or a season - got to be solved, and also owner-cultivators got to be convinced of the relative profitability of other enterprises compared to sugarbeet at support prices.

/...

In conclusion, it may be said that any further extension of sugarbeet growing should be critically examined considering its cost to the Government vis-à-vis the benefits to a small number of farmers, especially when there seem to be available good substitutes to the growing of sugarbeet. In fact, the objectives of a price support programme for sugarbeet need to be urgently reviewed and most probably, it would be profitable both to farmers as well as to the Government to curtail sugarbeet production in stages.

B. Tobacco

The tobacco prices are supported by the Government since 1935. The tobacco support programme operated through the tobacco monopoly (Régie des Tabacs et Tombacs) provides area allotments for tobacco growing to farmers and purchases the tobacco production at support prices. This programme has always been considered as an important part of the social policy of the government.

The area planted to tobacco has increased from 4,010 ha. in 1960 to 8,088 ha. in 1970, because of a liberal area allotment policy pursued by the government. The crop is concentrated in South Lebanon, as the main objective of the tobacco price support programme is to help the dry land farmers in that region. The cost of the tobacco programme for 1970<sup>75/</sup> is stated below:

	<u>Million LL.</u>
Value of the crop (amount paid to tobacco farmers)	41.2
Tobacco monopoly - costs of transformation (curing processing, etc.)	<u>21.0</u>
Total cost of production and transformation	62.2
Value of tobacco production, amount received by the tobacco monopoly in 1970	- <u>21.0</u>
Total support cost to the Government	41.2

<sup>75/</sup> Another way to calculate the support cost is the following: the support price in 1970 was LL.5730 per ton, while the international price for the same grades on average was LL 2500 per ton hence the loss per ton is LL.3230 and the total loss for the 1970 crop (7190 tons) is LL.23 million. It must be mentioned, however, that it was not possible to sell significant quantities of Lebanese tobacco at the international price without further increasing the expenses on transformation. About 12 per cent of the tobacco purchased from farmers had to be destroyed because of its bad quality.

/...

Table 45. Area, production and value of production of tobacco by Mohafazat in 1970 (in percentage)

Mohafazat	Area per cent	Production per cent	Value of Production per cent	No. of farmers per cent	Yield per ha. in tons	Value per ha. 000 LL.	Value per ton LL.	Value per farmer LL.
North Lebanon	22.96	19.73	18.57	21.75	0.764	4,12	5,390	803.8
Mount Lebanon	5.88	4.01	3.90	4.90	0.606	3,38	5,570	749.3
South Lebanon	68.68	74.25	76.03	69.23	0.961	5,64	5,870	1033.6
Bekaa	2.48	2.01	1.49	4.11	0.720	3,07	4,260	341.6
Total	100.00	100.00	100.00	100.00	0.869	5,09	5,730	941.2

Total	8088.2 ha.	7189.8 tons	41203.1 000 LL.	43776 number
-------	------------	-------------	-----------------	--------------

It is surprising to note that the tobacco monopoly received from the sale of the tobacco production only an amount equivalent to its processing cost. Hence, the total amount paid to the farmers for the raw tobacco constituted a loss to the tobacco monopoly. In addition to the support price, the tobacco monopoly incurred the following expenses, which also comprise losses to the monopoly:

	<u>LL. Million</u>
1. Fertilizers and insecticides, jute, etc., given to farmers free of charge	0.4
2. Extension services (advisory services to farmers)	2.3
3. Buildings, machinery, etc...	<u>4.0</u>
	6.7

Thus, the total loss to the monopoly on account of the tobacco support price programme added up to LL.48.0 million in 1970. The average annual loss during the last 5 years is estimated to be about LL.42.0 million. The tobacco monopoly meets these losses through import taxes levied on tobacco products. The net receipts of the tobacco monopoly on this account after meeting the losses varied from LL.26 to 36 million between 1965 and 1969.

/...

The recurrent annual cost of the tobacco support programme is the highest among all the support programmes for agricultural commodities; however, also the largest number of farmers (43,776 in 1970) benefit of the programme. The main reason for the increasing cost of this programme is the increase in area allotments, admitted under political pressure.

The gains to farmers from this programme can be seen from the following calculations:

	L.L.
Gross value per hectare	5094
Total cost per hectare (including imputed rent of own land and imputed wages of family labour)	
(a) includes LL.1500, the market value of the permit to grow tobacco	4649
(b) excludes the market value of the permit	3149
Net income	
(a) total costs including the market value of the permit to grow tobacco	445
(b) total costs excluding the market value of the permit to grow tobacco	1945

Source: Ministry of Agriculture. Figures pertain to South Lebanon where a large proportion of the crop is grown.

The area allotment licence is sold at the price of LL.1500 per hectare in South Lebanon. The relatively higher returns of tobacco, bought at the support prices, are therefore self evident. The returns to land, labour and management for this crop are quite high as compared to other competitive crops. The actual benefits of the farmers would be nearly one-third of the total cost to the Government of this programme and the remaining two thirds of this cost covers the costs of production of the crop.

/...

The magnitude of the annual cost of the programme to the Government should be the most compelling reason to study alternative ways of helping tobacco farmers and subsidizing their incomes, especially in the South. One evident alternative is to substitute in stages the area under tobacco to mulberry trees for silk production<sup>76/</sup>. It is understood that considerable areas under tobacco in the South of Lebanon were a few decades ago under mulberry trees, but were replaced by tobacco when, on the one hand, the silk industry was declining and, on the other hand, tobacco support prices were made available to the farmers. Integration of livestock production with pasture and fodder production seems to be another alternative in areas where irrigation facilities can be provided. Other alternatives outside the regime of agriculture, like establishing small scale industries should also be looked into.

Depending upon these possibilities, it seems advisable to limit tobacco cultivation to those areas where its yields are high and can be profitably grown without substantial or nil price support and where tobacco cultivation is not possible to be replaced under the existing technology by any other suitable agricultural or other enterprise.

الجمهورية اللبنانية  
 مكتب وزير الدولة لشؤون التنمية الإدارية  
 مركز مشاريع ودراسات القطاع العام

<sup>76/</sup> More details in next section, Silk.

/...

C. Silk

In 1930 the silk industry contributed about 50 per cent to the national income of the country. At present, its share in the national income is negligible.

The area under mulberry trees was only 200 ha. in 1968. Since then 60 ha. of new plantations were annually added to it. As new plantations start production after about three years, the effective productive area may be taken as 200 ha. up to 1971.

The total annual production of silk cocoons is estimated as 100 tons, out of which 85 tons are bought by the Silk Office at fixed prices and the remaining 15 tons are sold in the open market. The open market prices and the prices fixed by the Silk Office did not vary much since 1969. The Silk Office manufactures silk yarn from the cocoons in its factory. 80 per cent of the silk yarn production is used by the local textile mill and the remaining 20 per cent is exported. The total value of the 100 tons of cocoons produced annually is about LL. 0.64 millions and its gross value per ha. comes to LL. 3200. As can be seen in table 46, there are at present 2600 farmers, distributed over the various mohafazats, who produce silk cocoons. Cultivation of silk cocoons gives a substantial support income to many farmers.

Table 46. Silk production and farmers involved in 1970, distributed over Mohafazats

(Percentages)

Mohafazat	Per cent of farmers	Per cent of production
Mount Lebanon	70.0	62.5
North Lebanon	28.0	35.0
South Lebanon	0.5	0.5
Beka'a	1.5	2.0
Total	100.0	100.0
Total	2,600 farmers	100.0 tons

/...

There is no price subsidy given by the Silk Office to the farmers and no losses are incurred in buying cocoons at LL. 6.4 per kg. and selling the spun silk yarn at the price of LL 55 to 58 per kg. The annual expenses of the Silk Office are met from a government grant of about LL. 450 to 500 thousand.<sup>77/</sup> Farmers are helped by the Silk Office through extension subsidies which are stated below:

Item	Cost in LL
1. Distribution of 100,000 mulberry saplings annually - cost LL 0.30 per sapling, given to farmers at LL. 0.05; loss per plant LL. 0.25.	25,000
2. Disinfectants distributed free of charge	10,000
3. Silk worm eggs, 4,000 boxes at LL. 13 per box, distributed free of charge	52,000
Total	87,000

In addition to the above mentioned services, farmers get assistance of the World Food Programme. A grant of \$500,000, comprising food articles, is to be distributed over a period of four years; thereby, three thousand farmers will get a support for extending mulberry plantations. The value of this grant per farmer per annum comes to LL 135 and for the four years it is LL. 540.

It is understood from the Silk Office that the average yield of silk cocoons can be raised to about 900 kg. per ha.<sup>78/</sup> This would give almost the same gross income per ha. as for tobacco receiving support prices. Furthermore, in the recent years silk yarn prices have been rising on the international market at a rate of 6 to 7 per cent annually. Therefore, a reasonably good

<sup>77/</sup> Surplus money is mostly spent on new plantations, which have not yet started giving production.

<sup>78/</sup> See in this connexion: Ministère du Plan: Analyse économique et sociale des travaux de l'Office de la Soie, mars 1970, 28 p.+8 p.

/...

alternative to tobacco cultivation would be the planting of mulberry trees in certain areas of South Lebanon, Mount Lebanon, etc. for the production of silk cocoons. This would thereby appreciably reduce the losses of the Government on account of the tobacco subsidy programme. Hence, serious investigations should be undertaken to study the immediate realization of this possibility. It would also entail to study the international price trends of silk yarn, marketing possibilities abroad, and increasing utilization of silk yarn by the domestic textile industry.

D. Sunflower

The sunflower price support programme started in 1966 after the decision of the government to eradicate Indian Hemp ("hashish"). After various trials sunflower cultivation was initiated in the Baalbek-Hermel area, located in the North of Bekaa Valley.

As may be seen in Table 47 the sunflower area increased very fast. It is expected to stabilize around 60000 ha. in the future.

Table 47. Area, production and yield of sunflower production and number of farmers and villages, 1966-1971

	Area	Production	Yield per ha	Number of villages	Number of farmers
1966	83.1	43	0.51	14	17
1967	1000.0	530	0.53	28	273
1968	2887.7	1675	0.58	36	763
1969	4131.8	2540	0.62	40	1028
1970	4101.1	1600	0.39	41	850
1971	5286.3	...	...	43	954 <sup>1/</sup>

Source: Compiled by UNESOB on the basis of information secured from the Green Plan.

<sup>1/</sup> Actually there are about 1,500 farmers involved. Some farmers sold their produce to other farmers because of tax implications.

/...

Sunflower production is subsidized in two ways namely through (1) a price subsidy and (2) an extension subsidy. Under the price subsidy programme, the sunflower seeds were bought from farmers at LL 750 per ton and sold by the Cereals Office at an average price of LL 410 per ton between 1966 and 1970. The total value of the price subsidy for the five years period is calculated to be LL. 2.17 million. In addition, there are the storage, handling charges, etc. incurred by the Cereals and Post Office, estimated as LL 10 per ton. Thus up to 1970 the total cost of the programme to the Cereals and Post Office adds up to LL. 2.23 millions.

In the near future, the area under sunflower would increase to 6,000 ha. and the estimated future production would amount to over 3,000 tons annually. Thus the annual price support cost would come to about LL. 1.0 million.

In addition to the price subsidies to the farmers - LL. 340 per ton of sunflower produced --, the following annual costs were also borne by the Government:

Administrative expenses	LL. 200,000
Machinery	10,000
Services provided free to farmers	
Fertilizers - given free of charge to farmers (in 1967-68)	70,000
	<hr/>
	280,000

The total annual cost of this programme-price subsidy and extension services - would be about LL 1.20 to 1.50 million in the coming years. About 1,000 farmers would benefit from this programme.

It should be noted that the yield of sunflower on semi-irrigated lands is more than the double than on dry lands. It is understood that if sunflower is grown on semi-irrigated lands and its seeds are sold at support price, the returns are better than from Indian hemp. But the semi irrigated sunflower crop forms only about 10 per cent of total area. On the other hand, on dry lands, returns from Indian hemp are better than from sunflower. It is therefore

/...

difficult to convince dry land hemp farmers to substitute sunflower for it. Therefore, exploring possibilities for providing irrigation to this area deserves special attention. Furthermore, the irrigation facilities would expand the spectrum of possible crops, crops rotations, livestock combinations, etc which are likely to give better returns than sunflower. It should be mentioned in this connexion that the exploitation of underground water prima facie appears to be a good possibility which should be investigated, taking into account the recurrent annual cost to the Government of LL. 1.5 million of this support programme.

E. Cereals

The support price programme for cereals was introduced in 1963 and covers wheat and barley. Since 1968, maize has been brought also into its field. The quantities of these commodities bought by the Cereals and Sugarbeet Office<sup>79/</sup> are stated below.

Table 48. Quantities of wheat, barley and maize bought by the Cereals and Sugarbeet Office, 1963-1971  
(Tons)

Year	Wheat	Barley	Maize
1963	8,247	230	-
1964	9,853	13	-
1965	12,920	-	-
1966	8,692	-	-
1967	7,399	-	-
1968	6,949	-	84
1969	6,565	-	29
1970	12,380	-	-
1971	23,500	-	-

Source: Compiled by UNESOB on the basis of statistics secured from the Cereals and Beet Office.

<sup>79/</sup> The Cereals and Sugarbeet Office is under the authority of the Ministry of National Economy. It was set up in 1955, and reorganized in 1959, with the explicit purpose of ensuring a steady grain supply of staple grains in Lebanon, subsidizing local grain production, particularly wheat and barley and distributing improved seeds to farmers. In addition the programmes on sunflower, sugarbeet and hybrid corn are also administered by the "Wheat Office".

/...

It may be noted that the support price programme has only been effective for wheat. The support prices fixed for barley and maize were more or less the same as the market prices. Therefore, farmers did not sell their produce to the Cereals Office. The quantity of wheat bought at support prices forms on the average only 10 to 15 per cent of total wheat production. The Wheat Office did not succeed through its support scheme for cereals to increase or at least stabilize production, and as only a small proportion of the wheat production is marketed, the purchased quantities proved to be very small.

The support prices for wheat remained as LL 320 per ton for hard and LL 280 for soft wheat (first grade) for 1963 to 1969. In 1970 these were raised to LL. 350 per ton for hard and LL. 310 for soft wheat (first grade) <sup>80/</sup> These prices are LL 80 to 100 higher than the CIF cost per ton of the imported wheat. Farmers receive LL. 10 per ton less than the support price as this amount is deducted for storage, transport, etc. The Cereals Office, however, incurred an additional cost of LL. 10 per ton for handling and disposal of the purchased stocks. The difference between the buying and selling price per ton of wheat at the Cereals Office was LL. 40 from 1963 to 1969 and became LL. 70 in 1970. Annual losses to the Cereals Office were LL. 50 per ton during 1963 to 1969 and LL 80 per ton in 1970.

The total loss to the Cereals and Sugarbeet Office for supporting wheat prices from 1963 to 1970 adds up to LL. 4.0 million; the average annual loss comes to LL. 0.5 million. The loss in 1970, LL. 1.0 million, was the highest so far recorded and was distributed as under:

Table 49. Wheat bought by the Cereals Office and farmers benefitting distributed to Provinces, 1970 (numbers; percentages)

Mohafazat	Quantity of wheat bought by the Cereals Office (Per cent of total)	Farmers benefitting	
		Number	Per cent
Bekaa	82.3	450	51.4
North Lebanon	9.7	225	25.7
South Lebanon	8.0	200	22.9
Total	100.0	875	100.0

<sup>80/</sup> The lowest price for the hard wheat is LL. 320 and the highest LL. 350. per ton. The lowest price for the soft wheat is LL. 280 and the highest LL. 310 per ton.

/...

In the near future the cost of this support price programme might increase substantially as the introduction of high-yielding Mexican wheat varieties is expected to boost production.<sup>81/</sup> The cost of a price support might even become prohibitive in future years because larger quantities will be sold to the Cereals Office.

It may be noted that an increase in the cereals and grains production could replace large quantities of cereals imported for human consumption and feed grains imported for livestock production, especially for the poultry industry. It would, therefore, be useful to study more in detail the relationship between the price support programmes of cereals and their production levels. The aim of this programme should be to fix the support prices at levels which give incentive prices to producers for using improved varieties of seed and adequate quantities of crucial inputs, namely fertilizers and insecticides. But at the same time these support prices should not be high enough to extend their production to lands on which high value crops are grown.

It should be stressed in this connexion that the support prices for wheat are about LL. 80 to LL. 100 higher than the CIF cost per ton of imported wheat. At present, wheat is purchased by the Government at only three centres. In this case it does not seem necessary to further increase wheat prices but an increase in the number of purchasing centres would certainly give some impetus to its production, because marketing facilities would be brought within an easy reach of the farmers. Furthermore, steps should be taken to stimulate, through intensive extension work, the increase of the area under Mexipak along with the adequate use of fertilizers, insecticides and water, which would substantially increase wheat production. The level of the wheat support prices, therefore, should be reviewed time and again as against the level of wheat production.

---

<sup>81/</sup> Support cost for the wheat crop in 1971 was LL. 2.0 million.

/...

The price support programmes for barley and maize have not been operative so far because of the low level at which these prices were fixed compared to their prices in the local market.<sup>82/</sup> As an increase in the production of feed grains is urgently needed to support the livestock and poultry development programmes, their prices should be reviewed and raised to the level which would give farmers an incentive to increase their production.

#### F. Green Plan

The Green Plan, instituted by presidential decree No. 13335 on 10 July 1963, became operative in 1965 with the overall purpose to improve the level of the agricultural sector. The series of measures was taken, to reclaim new land, to bring back in to cultivation abandoned land, to build agricultural roads, to help in reforestation, to distribute saplings, to assure long-term credit and technical assistance to reclaim lands, etc.... To these ends, the Green Plan received two grants to be spent over a period of ten years.

1. A first budget of LL. 40.0 million for land reclamation - for loans to farmers for land development;
2. A second budget of LL. 30.0 million for administration and public works.

Under the land reclamation programme, a certain percentage of the loan applied for is deposited in the BCAIF by the farmer and this deposit earns an interest of 7 per cent per annum. Consequently, the total amount of the loan granted is recuperated over a period varying between 10 to 25 years. The lower the amount of the loan, the larger is the number of years permitted for the recuperation of the loan, thereby resulting in a lower proportion of

---

<sup>82/</sup> As for example, in 1969 the support price for barley varied between 18 and 20 PL/kg., while the farmgate price averaged 20 PL/kg. The CIF import cost of barley was 15.4 PL per kg. As for maize, the support price in 1969 was 24-25 PL per kg. while the local price averaged 26 PL/kg. Imports were made at 13.6 PL/kg. CIF.

/...

the loan requested to be deposited by the farmer in the beginning. The maximum loan made to a single farmer is LL 10,000. Below are stated the initial deposit to be made by the farmer and the period to recuperate the loan for various sizes of loans.

Amount of works to execute at a farm	Initial single deposit of the farmer	Period to recuperate the loan
Between 0 - 2000 LL	18.4 %	25 years
2001 - 4000 LL	29.6 %	18 years
4001 - 6000 LL	44.4 %	12 years
6000 -10000 LL	50.8 %	10 years

It should be noted that the ceiling of LL 10,000 was not enough to complete the development of the individual farms in a large number of cases. On average, the farmer has to invest on the reclaimed land twice as much as the Green Plan loan.<sup>83/</sup> Under this programme, LL. 32.2 million have been utilized at the end of 1970.<sup>84/</sup>

Table 50. Reclaimed area, farmers benefiting and total reclamation costs of the Green Plan by mohafazat, up to 1970 (Percentages)

Mohafazat	Area reclaimed	Number of farmers benefiting	Total cost
North Lebanon	20.64	22.97	19.05
Mount Lebanon	16.96	24.93	24.16
Bekaa	31.12	27.47	24.53
South Lebanon	31.29	24.63	32.25
Total	100.00	100.00	100.00
Total in absolute figures	11,126.1 ha.	17,031 number	32,271.00 000 LL

<sup>83/</sup> Green Plan: Request to the UN/FAO-WFP for assistance in a project for economic and social development, Beirut, September 1969, p. 22-24 - Investment expenses for one hectare farming area in the mountains (the average farm) - through the Green Plan are quite high as they average LL 9,300-11,300 for basic land reclamation and LL 19,300 for additional costs of irrigation equipment.

<sup>84/</sup> G. Boyagi: La rentabilité du Plan Vert, 1971, Mémoire pour le diplôme d'études supérieures en sciences économiques, Université St. Joseph, p. 14.

/...

Out of the administration and public works budget - LL. 14.6 million was spent up to 1970. The cost of public roads built and fruit saplings distributed under this grant is given in table 51. The remaining LL 10.0 million were spent on administration.<sup>85/</sup>

Table 51. Number of fruit saplings distributed to farmers and cost of public roads distributed over mohafazats up to 1970 (Percentages)

Mohafazat	Fruit saplings distributed	Cost of fruit saplings distributed <sup>1/</sup>	Cost of public roads and works
North Lebanon	16.27	16.27	31.47
Mount Lebanon	24.59	24.59	27.78
Bekaa	36.10	36.10	23.12
South Lebanon	23.04	23.04	17.62
Total	100.00	100.00	100.00
Total absolute figures	2,100 000 saplings	2,687 000 LL	1,707 000 LL

<sup>1/</sup> Distributed in proportion to the number of saplings

In addition to the assistance provided by the Green Plan under its two afore said programmes, additional assistance was and will be given to help farmers reclaiming land, building terraces, constructing reservoirs etc. through the World Food Programme.

<sup>85/</sup> G. Boyagi, La rentabilité du Plan Vert, p. 15.

/...



1. For the building of terrace walls, reservoirs, etc, 1965-1970	US \$ 971,000
2. For the planting of fruit trees on newly reclaimed lands from 1970-1973	1,700,000
3. For reservoirs, walls of terraces, agricultural buildings, agricultural roads, reforestation, etc., 1971 to 1976	9,900,000

The Ministry of Planning has made an analysis (economic, financial, social) of the operation of the Green Plan in 1965-67<sup>86/</sup>. It was found that out of total valorized land during 1965-67 67 per cent was cultivated (15.2 per cent with cereals) and 33 per cent not cultivated in 1968. The Green Plan is processing a survey to evaluate the performance in recent years. Preliminary results indicate that the proportion of reclaimed land left uncultivated has considerably decreased in recent years. Most of the reclaimed land is planted with fruit trees. The valorized parcels of land are predominantly small as 40 per cent of these are less than 4 dounums. It is one of the difficulties to obtain optimum benefits of the reclaimed land by extensively using modern methods. Consequently, it was feared that the impact on the revenue of the farmer would remain rather weak.

It was also found in the survey conducted by the Ministry of Planning that 47 per cent of the beneficiaries are not real farmers (main activity being farming) and 75 per cent are small and medium owners (less than 50 dounums), who only got 49 per cent of total works and loans of the Green Plan. Very tentative figures of the 1971 survey indicate that the proportion of real farmers benefitting from the Green Plan has substantially increased.

<sup>86/</sup> Ministère du Plan: Analyse économique financière et social du Plan Vert, Beirut, février-avril 1969.

/...

In closing the discussion on the Green Plan activities, it may be noted that farmers have become quite aware of these programmes as is evident from the fact that these programmes have been extended to 50 per cent of the villages, although their coverage in these villages varies widely. It bears mention that because of political pressure and in the absence of implementation of any major irrigation project, there has been a tendency to distribute the funds of the Green Plan equally to the four provinces without employing any economic criteria for distribution of these funds. If in the future some major irrigation projects will be undertaken, it should be possible for the Green Plan to concentrate its programmes more on the irrigated lands where, in general, the returns would prove to be high. It is also important that the economic feasibility for investments to be made under these programmes should be calculated for various regions and various types of land in these regions. These case studies should act as a guiding post for deciding whether or not the Green Plan help should be extended to a particular parcel of land. Furthermore, there should be a very close coordination between the Green Plan and the Ministry of Agriculture in the follow-up action of the reclaimed lands; this is conspicuously neglected at present.

In summary, it may be noted that in 1970 the cost of the price support programmes was LL. 49.3 million distributed as follows: tobacco LL. 41.2 million, sugarbeet LL. 6.6 million, wheat LL. 1.0 million and sunflower LL. 0.5 million. In addition to this, materials worth about LL. 0.6 million were given to farmers free of cost. The annual cost to the Government of these programmes at the end of 1975 is expected to reach LL. 60.0 million because areas under the above stated crops and/or yields are likely to increase.

About 48.4 thousand farmers benefitted from the price support programmes, and the majority of them were tobacco farmers numbering 43,776. Also 2,600 silk farmers, 875 wheat farmers, 850 sunflower farmers and 300 sugarbeet farmers benefitted from the support programmes.

The regional distribution of the cost of these programmes was as under:

/...

Table 52. Distribution of the cost of the price support programmes as to provinces, 1970.

(Per cent)

Province	Per cent share of cost	Per cent of total cultivated area
South Lebanon	63.5	25.1
Bekaa	17.4	42.7
North Lebanon	15.8	16.4
Mount Lebanon	3.3	15.8
Total	100.0	100.0

Source: Calculated by UNESOB on the basis of Appendix table 27.

The cost of these programmes in South Lebanon was proportionately more than the cultivated area because of the predominance of tobacco area there. The cost in the Bekaa and Mount Lebanon was proportionately less than the cultivated area in these provinces, while in North Lebanon the proportion of these costs and cultivated areas was almost the same. Thus, South Lebanon got the main gain from the price support programmes.

The significance of the annual cost of these programmes (about LL. 50.0 million in 1970) can be realized by the fact that they form 11.8 per cent of the GDP contributed by the agricultural sector (1969) and are equal to the total investment (LL. 51 million) which was envisaged for the agricultural sector in the five-year development programme 1965-69.

It is of great significance to note that the gains of the benefitting farmers are only about one-third of the total cost of these programmes, as the remaining two thirds cover the various cash and kind inputs incurred by farmers, especially on tobacco and sugarbeet. Therefore, if granting of financial aid to farmers were the main aim of these programmes, it could be achieved to the same degree with only one-third of its cost, by giving

/...

grants to these farmers equivalent to their present benefits. But the better alternative would be to give to these farmers loans and grants for investment and current expenditures for developing alternative means of income, not requiring concurrent financial aid from the government in the future.

It is worth exploring the reasons why, despite the high cost of these programmes, their merits and rationale have not been seriously questioned by the various government agencies and the public. The manner in which these programmes are financed seems to be one of the main reasons for impairing serious opposition to these programmes. The tobacco monopoly meeting the cost of the tobacco price support programme from the revenues received by it - import levies and taxes on tobacco products - showed during most of the past decade an adequate surplus; the Cereals and Sugarbeet Office issued licenses to import raw sugar and cereals on the condition that importers would buy at specified prices certain quantities of domestic produce equivalent to certain proportions of imported quantities. In 1971, the government directly imported all the requirements of wheat at about LL 210 to 230 per ton and sold to the miller at LL. 230 per ton to control the local bread price at LL. 400-450 per ton. The cost of these programmes is met through levying import duties on raw sugar and flour, government grants, etc.

Each organization meets the cost of its price support programme from its own revenues. Thus, erroneously these programmes were categorized as self-financing. Therefore, although the costs of these programmes are ultimately borne by the public, the manner in which these costs are manipulated most probably avoids serious public attention and its criticisms.

The main issue is how long these costs will continue to be borne by the government, especially when these are likely to be increasing at a considerable pace in the future. The possibilities of curtailing the cost of the programmes for tobacco, sugarbeet and sunflower, indicated in the preceding pages, seem encouraging. The price support programme for cereals and feed grains, on the other hand, needs to be reorganized for extending its effectiveness. At present no facet of livestock and poultry production is given price support.

/...

There is a prima facie case for considering a limited price support and price subsidy programme for some facets of livestock and poultry production and marketing. One evident aspect needing study is to give a selective price subsidy for exports of eggs to countries in the region (for example Iraq) where other countries are dumping eggs. Another important aspect is to provide feed grains and fodders at lower prices.

It is, therefore, suggested that a high level interministerial commission be set up to examine these programmes and to adjust them in line with the objectives of development and the aims of the social policy, two main components of the welfare function of the country.

Besides these annual recurrent costs to the government, considerable costs of development incurred under the Green Plan programme were indirectly borne by the government. Suggestions have been made in the preceding pages to improve the implementation of these programmes and those need not be repeated here.

## VII. SUMMARY AND CONCLUSIONS

In this chapter are presented a brief summary of some basic findings and the more important conclusions of the report, roughly in the order in which they were presented.

### Growth

1. The share of the agricultural sector in GDP has been steadily declining in the past and at present it is about 10 per cent. The gross value of agricultural production increased at a compound annual rate of 5.8 per cent during the period 1956 to 1969; the corresponding rates for the crop and livestock subsectors were 3.8 and 11.6 per cent respectively. Within the crop subsector, industrial crops (tobacco and sugarbeets) grew rapidly, fruits and vegetables grew at a moderate rate, oil seeds grew slowly and production of cereals and pulses dropped sharply. Within the livestock sector, poultry production increased at a phenomenal rate, dairy production at a high rate and red meat production at a low rate.

2. On an overall basis, Lebanon's agricultural growth was more rapid than the FAO-Near East region as a whole. For cereals and fruits Lebanon's growth rate was faster than the region as a whole; for red meat the growth rate of Lebanon was slower than the region as a whole and for vegetables the growth was only about the same as the region as a whole. However, it should be noted that the overall growth rate in recent years in Lebanon has been virtually nil because of the tapering off of the development of the leading sub-sectors without compensating improvements in the development of the laggard sub-sectors. An urgent task is, therefore, to identify factors retarding the growth of the agricultural sector and to undertake steps leading to the attainment of a reasonable rate of growth (5 to 6 per cent per annum). In this connexion, some important areas where suitable action would promote growth are enumerated in the following pages.

### Resources and their utilization

3. Abandoned lands (175 thousand ha.) form as much as 44 per cent of the cultivated area and 80 per cent of the cropped area. The increase in the area

/...

of abandoned lands was caused by various factors, namely increase in the production costs, prevalence of small farms with fragmented parcels, inefficient land tenure system for rented lands, migration of farmers to urban areas etc. An evident adverse impact of the increase in the area of abandoned lands is that cropped area remained, more or less, constant during the past decade despite the positive influence of the increase of irrigation facilities and intensification of land use. A considerable proportion of these lands could be put under pastures and also arable crops and fruits could be raised on some of these lands after developing irrigation.

4. About half of the cultivated area is kept under fallow annually. However, this practice does not conserve moisture nor raise fertility because in the fallow years weeds grow on these lands. Efforts directed to decrease fallow lands in dry areas by improving their cropping pattern, especially through inclusion of winter legumes in the cereals-fallow (one to two years) rotation, by introducing varieties resistant to dry conditions and by application of fertilizers (in good rainfall areas), would be very rewarding. Perennial grasses and pastures are a good alternative for low yielding grain lands.

5. The afforestation and reclamation of lands suitable for cultivation should be included among the important measures of development.

6. Prevalance of small farms fragmented into a number of parcels is a serious obstacle to exploit fully the potentialities of a considerable part of the cultivated lands. This situation is partly responsible for an increase in the abandoned lands, the number of part-time farmers and the number of farmers forced out of the agricultural sector; consequently, this situation is the cause of a number of socio-economic problems existing in rural areas. Although only 20 per cent of the farmed land is rented by farmers and the remaining 80 per cent is owned by them, the land tenure system (mainly short term renting, hence insecurity of tenancy) of the rented lands is devoid of incentives for further development. Concerted efforts to consolidate the fragmented farms, to provide security and, consequently, continuity of operations on the rented lands are therefore urgently needed.

/...

7. The permanent irrigated area forms only as low as 25 per cent of the cropped area. It is believed that the irrigation systems could be made much more efficient by improving canals and field channels, by more rational and integrated use and better management of water from various sources - surface, atmospheric and underground - by farmers. It is estimated that the presently known water resources, if fully exploited, could double the irrigated area. It need hardly be stressed that in order to maintain a reasonable rate of growth (5 to 6 per cent per annum) in the future, it will be imperative to develop irrigation facilities by judicious combination of large, medium and small irrigation projects. At present more stress appears to be laid on large and impressive projects.

8. Waterrights prevailing in the country are quite complex and out-moded. These waterrights present a serious obstacle to development of land and water use in certain areas and would do so more in the future. It is therefore urgently needed that the problems and conflicts emerging from these waterrights should be resolved quickly, by enacting proper and modern legislation consistent with the optimum use of one of agriculture's scarcest resources.

9. Considering the cultivated and cropped area per tractor, the number of tractors in operation in the country appears to be quite reasonable. However, many tractors are used only partly or not at all for agricultural operations. Most of the tractors are owned by contractors whose services are rented by farmers for various operations generally on a unit area basis. Although, in general, the rates charged by contractors are reasonable, farmers have practically no control on the supply of this important means of cultivation and in many cases it most likely affects adversely the cultivation, production and marketing plans of farmers. Improvement in the prevailing system can be made by encouraging the expansion of the custom hiring system of tractors and other agricultural machinery by owner farmers, by exploring possibilities of cooperative ownership of agricultural machinery and by providing adequate credit facilities to bring the purchase of an appropriate mix of agricultural machinery within the reach of a sufficient number of farmers.

/...

10. At present tractors are mostly used to perform the main agricultural operations, namely, ploughing, disking and harrowing. For various operations either appropriate implements are not attached to tractors or the operations themselves are not correctly performed even with the right implements. Consequently, operations are not performed at the most economical cost and also they adversely affect the land level. An increasing economic pressure for mechanization of more operations and for covering more lands is expected in the near future, mainly because of the increasing shortage of agricultural labour and the intensification, rationalization and modernization of agriculture. In the past, the private sector has taken the major role in financing and selecting agricultural machinery. In the future, the government should play an important role in both aspects by providing appropriate extension and advisory services, by organizing training courses in maintenance of agricultural machinery, etc.

11. The overall level of fertilizer<sup>use</sup> compared to the other countries in the region is quite high. But most of these fertilizers are applied to high valued crops - vegetables, fruits and industrial crops. The application of fertilizers to cereals and pulses is very low. In order to increase the production of cereals and pulses for human consumption and livestock and poultry feed, it is suggested that the quantitative responses of fertilizers to cereals and pulses vis-à-vis the relationship of prices of cereals and pulses to fertilizer prices, should be carefully studied and incentive price levels for cereals and pulses should be derived. These price levels should be regularly reviewed, and the price subsidies to cereals and pulses should be adjusted or dropped as demanded by the future situations.

12. Some 34 per cent of the active population is employed in the primary sector (agriculture, fisheries and forestry). The decreasing tendency in the proportion of the active population employed in the primary sector is expected to continue in the future. Explanation for this tendency, additional to that given earlier is the low level of income in the primary sector compared to all other sectors. If this gap in the parity income is not shortened by implementing suitable measures, it is feared that serious socio-economic problems may arise in the foreseeable future. One of the foremost aims of the agricultural policy should, therefore, be the implementation of appropriate measures for achieving

/...

a reasonable parity in the income of the agricultural sector vis-à-vis other sectors. The attainment of a 50-60 per cent income parity level for the agricultural sector should be the medium-term goal and 70-80 per cent the long-term aim. There seems to exist a good potential for intensification and modernization of the agricultural sector to achieve the above stated level of parity income.

#### Agricultural Institutions and Administration

13. The cooperative movement, although started in the sixties is still in its infancy. The main core of this movement is the principle of free-will cooperation contrary to the reform elements, the conspicuous aim in most of the other countries of the region. Even with simple operational organization such cooperatives could play a very useful role especially in creating cooperation among vegetable and fruit producers, in exploiting abandoned lands, in initiating development of semi-intensive sheep rearing, in developing dairy and red meat production, in using agricultural machinery more efficiently, etc. Besides, experiences in the poultry industry indicate that marketing cooperatives for specific products are also well suited to the country.

14. Loans granted by public sources are conspicuously small; the Banque de Crédit Agricole, Industriel et Foncier (BCAIF) and the Green Plan, the two main public credit sources, granted only 10 per cent of the total volume of agricultural credit; 90 per cent of all public and commercial credit granted comes from private sources: commercial banks, importers and distribution agents of fertilizers, insecticides and agricultural machinery. In addition to this credit, substantial amounts of credit are secured by farmers from money lenders, relatives, merchants etc. at very high interest rates and/or with hard conditions attached, for instance, tying up of marketing of produce. The supply of agricultural credit at reasonable terms is particularly deficient in the areas of medium and long-run credit. The Government should pay serious attention to removing this serious impediment to development. The establishment of a development bank (for industrial development and tourism) should be ample reason to convert BCAIF into an agricultural bank. Also the coverage of the cooperative credit should be widely expanded.

/...

15. The agricultural administrative structure is complex and cumbersome. The activities relating to the agricultural sector are shared vaguely by the Ministry of Agriculture itself, its five semi-autonomous bodies, the tobacco monopoly and the Cereals and Sugarbeet Office. There is no effective mechanism to coordinate the functions of the said organizations. Consequently, it has been inevitable that a certain duplication of activities occurred and that a well-knit agricultural policy failed to evolve. The present agricultural administrative structure should, therefore, be urgently improved by provision of a suitable coordinating mechanism and creation of a high level board responsible for policy directives consistent with development aims and objectives. Such improvements in administration would certainly require more and better qualified officials, creating of incentives for good work, etc.

16. So far, no comprehensive plan for (agricultural) development has been developed or executed. The medium term capital expenditure programmes (public works programme) have formed the basis for development in the past. Actual outlays (57,0 million LL) exceeded planned outlays (51,0 million LL) of the agricultural sector in such a programme during the 1965-1969 period. However, with regard to irrigation projects actual outlays lagged behind planned outlays substantially and acted as one of the serious impediments to growth.

17. There are only a very small number of extension workers. Apart from increasing substantially the number of adequately trained extension workers, efforts should be directed to decrease the information gap in the technical results obtained at the research stations and their actual implementation by farmers. The importance of a two-way flow of information between the extension service and the research stations for formulating rational development programmes and schemes should be realized in order to clearly define priorities among research programmes based on first, the immediate problems of agriculture faced by farmers and second, the long-term requirements of agriculture. Besides, the country has still a long way to go to develop educational and training facilities to cope with the needs of extension and research.

/...

#### Production

18. Substitution of cereals by vegetables, industrial crops and fruits has been quite conspicuous since the latter mentioned crops give higher gross returns in value than cereals. This substitution contributed considerably to the growth of the sector. However, the decrease in cereals and feed grains production brought about by this substitution and by some cereals land going out of cultivation was not in consonance with the past developments in the meat production sector (especially poultry) and the increase in the demand for cereals for human consumption. Consequently, the country imported annually nearly three-fourths of the poultry feed and 80 to 85 per cent of total domestic consumption of wheat. The large foreign exchange cost of these imports calls for undertaking technical and economic measures to increase cereals and feed production when there is a good potential for increasing their production through intensification of land use, through extending areas under high yielding varieties (maxican wheat varieties, hybrid maize etc.) and through bringing back into cultivation some abandoned lands.

19. The area under fodder is very small and thus, fodder production presently meets only a fraction of the total needs of the livestock and poultry sectors. Multipronged attempts to increase the fodder production should, therefore, be very rewarding, namely growing of alfalfa and annual fodders on irrigated lands, intercultivation of fodders in young orchards, raising of grasses and pastures on some abandoned and less productive lands and, in general, incorporating fodders in the cropping patterns.

20. Raising under cover of out-of-season and early season vegetables offers a good possibility for profitably increasing production and export of a number of vegetables. Efforts already initiated in this direction should be further strengthened. Yields of most of the vegetable crops are low and could be substantially improved by introducing better varieties and by using adequate inputs.

21. In the future production of apples and citrus should be further diversified by introducing appropriate varieties (early, normal and late) and by reorganizing the harvest season of the existing plantations within the

/...

biological limitation of their harvesting period, in order to avoid as much as possible the seasonal gluts and scarcities of supplies in markets. Considerable improvements are also possible in the production of stone fruits, olives, etc.

22. Eggs comprise 50 per cent, broilers 46 per cent and breeding products 4 per cent of the total gross value of poultry products. At present, one-third of the value of poultry production is exported. These exports are comprised of 50 per cent of egg production, 5 per cent of broiler production, and 35 per cent of the production of the breeding industry. The domestic demand of poultry products cannot be the main force for the development of this sector in the near future. Therefore, its further growth will mainly be determined by the export demand. The export of eggs, the main component of this industry, is already facing serious competition from some East European countries which dump their eggs at low prices on the markets of the region. Because of this an important export market in Iraq was lost in 1970. Also some other importers of Lebanese eggs are endeavouring to develop their poultry production e.g. Syria and Jordan. The demand for hatching eggs may, however, increase substantially in the coming years. Its magnitude will be determined by the pace at which the poultry industry develops in the countries of the region. The prospects for increasing broiler exports are not encouraging because of the high prices of broilers. It is rather disquieting to note that the growth of the poultry sector - the leading sector in the recent past - has tapered off because of the above stated facts. By and large, it seems that, under the present marketing prospects, the production of poultry products will have to be stabilized. In order to make further development of the poultry industry possible various measures should be undertaken to decrease the price of the poultry products, namely, lowering of feed costs, introducing the system of price discrimination (lower export prices for external markets where other countries are dumping their products), adopting better and more efficient marketing practices, etc.

23. Contrary to the supply of poultry products, about four-fifths of the total supply of red meat is met from imported animals which generally are not at all fattened or are fattened only to a small degree locally. Largest are the imports of cows and sheep for beef and mutton production. It will

/...

be relatively easier to substitute sheep imports by local production than substituting cattle imports by local production. First, because the breeding cycle of sheep is short and sheep are more prolific than cows. Second, the local population prefers mutton over beef and mutton suits more the dietary habits of the Lebanese. Third, the region has a very long experience in raising sheep for mutton. Therefore, the development of mutton production deserves a high priority. Developing of cattle production for beef is tied up with dairy development because first, the exotic cow breeds and their crosses with local cows are dual purpose-for milk as well as meat production - and second, a specialized fattening industry for beef has not yet made headway in the country. Nevertheless, serious attempts to develop cattle rearing for beef could be very rewarding considering the number of imported cattle for beef production. A preliminary condition for developing a fattening industry (beef or mutton) is the availability of cheap and plenty feed, however,

24. At present nearly two-thirds of the milk products consumed in the country are imported. The remaining one-third of the consumption is supplied from cows (60 per cent) and sheep and goats (40 per cent). Cattle development for milk as well as beef production is a medium range programme which distinctly needs a package approach including increasing the number of improved cattle through import of exotic breeds and up-grading of the local stock by cross breeding, providing animal health control facilities, enhancing feed and fodder production, creating a competent degree of management, ensuring remunerative prices for the products, improving land tenure systems for rented lands, etc..

25. The Bekaa Valley and the coastal strip are the important agricultural production areas of the country. On the other hand, the province of South Lebanon is a poor agricultural region with a very weak agricultural structure. In order to allow for a rational allocation of inputs among various zones, formulation of a realistic policy and development through determination of the quantum of zonal resources, exploration of instances of mal-allocation of resources and estimation of the potential of agricultural production of these zones,

/...

and above all the evolution of optimum production plans for various zones, the delineation of the country into a number of agricultural zones on the basis of natural endowments and other resources should be given high priority.

26. There are a number of possibilities for extending the production of existing agro-industries and also for starting new ventures after careful examination. The main problems of the agro-industries are the lack of adequate basic produce timely supplies and an inappropriate quality (in some cases). The communication between farmers and industrialists should be improved to remove these obstacles. The government should play a leading role in closing the gap in the exchange of information between farmers and industry owners.

#### Marketing, Pricing and Trade

27. There are three main wholesale vegetable and fruit markets in the country; the most important one is the Beirut market. Specific wholesale markets for other agricultural produce do not exist. The market in Beirut is overcrowded and operational methods are traditional. Therefore, there is an imperative need for building a modern wholesale market for fruits and vegetables in Beirut. Consideration should also be given to provide wholesale marketing facilities for other agricultural commodities, namely cereals and livestock products.

28. The price spreads between the farm-gate and retail prices are generally high; this is especially true for vegetables and fruits. Reduction of these price spreads to reasonable levels should be one of the important aims of measures to be undertaken to improve the marketing efficiency.

29. A number of serious problems in marketing are caused by political upheavals in the region, which lead to temporary closure of borders between countries in the region or cessation of imports from certain countries. As the bulk of agricultural exports of Lebanon is composed of perishable and semi-perishable goods and is exported to the countries of the region, reoccurrence of such disturbances in trade leads to considerable wastage in the agricultural produce and dumping on the internal market of produce which could have been exported. In order to create flexibility in the exports, it would be worthwhile to study the possibilities of diversifying the exports to other countries and of processing some of the produce for internal demand and export.

/...

30. At present, there is no central marketing organization responsible for identifying the marketing problems, internal as well as external, to detect inter-relationships among various problems and causes thereof, and to offer integrated solutions for these problems. For a country like Lebanon, exporting a considerable proportion of the agricultural produce, such an organization is a necessity. Contrary to the present system of attempting to solve marketing problems when they have actually occurred through piecemeal and temporary measures - as in the case of apples and eggs - the suggested central organization would study in advance production developments and external marketing possibilities and would make reasonably accurate estimates of prices. Special attempts would also be made by this organization to make medium and long term contracts for exports with the countries in the region and other countries to spare the farmers from the uncertainty and hazards caused by political conditions rather than economic forces. In short, the external marketing problems of the agricultural produce are volatile and dynamic and accordingly the suggested central marketing organization should be provided with adequate technical and financial resources to cope efficiently with these problems.

31. As substantial quantities of agricultural produce are exported, the future demand for these exported commodities in the recipient countries should be carefully studied so as to enable the farmers to change their production plans and marketing schedules accordingly.

32. Cultivation of vegetables under cover to secure early or out-of-season production when prices are high seems to be a good possibility. For instance, in winter many crops can be grown under cover and exported to markets in Eastern and Western Europe, provided proper packing and preservation and fast shipments of the products are done (e.g. winter crops of cucumbers, lettuce, radish, asparagus, ...). Also there exist good prospects for early season tomatoes, squash and eggplant. Prices are high at that time of the year.

33. As far as fruits are concerned, efforts should be directed to promote and increase the availability of late season oranges (Valencia late), but also considerable profits can be made if more oranges were harvested at the end of the "normal" season. (Washington Navel, Moghrabi) before Valencia comes to the market.

/...



Prices are very high at that time of the year. Provided a small part of the apple crop is processed and adequate and efficient organization and proper marketing of the rest of the crop, there is no reason whatsoever which indicates that serious marketing problems for apples should arise. Production development of grapes should concentrate on early season (before 15 June) and late varieties because there exists a strong demand for these products in both Arab and European markets. Also good marketing possibilities exist for stone fruits. High quality products have a strong demand.

34. The development of the broiler and layer industry in Arab countries will increase the demand for Lebanese hatching eggs. The demand for table eggs in Lebanon and the Near East will remain strong, as for sometime to come the area is expected to remain a large deficit area for eggs. However, stiffer competition from Eastern countries is to be expected in the future. Fast shipment of high-quality eggs at low prices will be increasingly a necessity for successful marketing. In the future the Lebanese broiler industry can expand its sales on the domestic and foreign markets. However, as production of European competitors is subsidized, expansion of the foreign market is hardly possible unless an export subsidy is granted to the industry. Despite the large increases in broiler consumption on the domestic market in the past there is still considerable room for expansion.

35. Urgent steps should be taken to improve livestock and meat marketing and cold storage. Vast improvements can be made throughout the whole marketing chain from livestock owner to consumer (hygienic arrangements, efficient abattoir units, lack of grading and pricing). A programme of livestock development should give sufficient attention to the processing and marketing of livestock and livestock products. An aspect that requires particular attention and further detailed study is the introduction of the grading of meat. Furthermore, help should be provided to establish modern facilities for the most efficient processing and utilization of slaughterstock by-products.

36. As far as marketing of milk and milk products is concerned, large improvements can be made in the organization of marketing (milk collecting, transport, distribution) and the processing of milk and milk products. Efforts should be made to promote the quality of the dairy produce and assure adequate hygienic conditions throughout the processing and marketing stages.

/...

37. The absence of an integrated price policy for agricultural commodities is one of the major weaknesses in the marketing and pricing systems of the country. There are wide spreads between farm-gate and consumer prices for most of the commodities; rising production costs generally decrease profits of farmers, while marketing margins for wholesalers and retailers tend to remain constant; there is no marketing news service worth mentioning and thus farmers have to base their marketing decisions on insufficient and inadequate information, etc.. Hence, there is an imperative need to evolve an integrated price policy ensuring reasonable prices for agricultural commodities and keeping the prices of inputs at fair levels. An important element of this policy should be the establishment of a market news and information service for guiding farmers to take rational production and marketing decisions.

#### Price Support and Agricultural Subsidy Programmes

38. The cost of the price support programmes to the Government was nearly LL50 million in 1970. This amount was distributed as follows: tobacco LL41.2 million, sugarbeet LL6.6 million, wheat LL1.0 million and sunflower LL0.5 million. About 48 thousand farmers benefitted from these price support programmes, the majority being tobacco farmers - 43.8 thousand. Because of the predominance of the tobacco farmers in South Lebanon, nearly 64 percent of the cost of these programmes was incurred there. The significance of the total annual cost of these programmes can be realized by the fact that they represent 11.8 percent of the gross agricultural product and are equivalent to the total investment which was envisaged for the agricultural sector in the five-year development programme 1965-69.

39. The gross value of the tobacco and sugarbeet production has been a net loss to the government because the value of the processed commodities was hardly equivalent to the manufacturing cost incurred by the enterprises converting sugarbeet and tobacco into marketable commodities, i.e. white sugar and cured tobacco. On the other hand, the actual gains of the benefitting farmers were only one third of the total cost of these programmes, the remaining two-thirds covered the various cash and kind inputs incurred by farmers. If granting of financial aid to these farmers was the main aim of the programmes, then, the same objective could have been reached at only one third of its cost, by giving annual grants to these farmers.

/...

40. The modus operandi of these price support programmes gives the erroneous impression that these programmes are self-financing; the tobacco monopoly finances its price support programme from import duties levied on tobacco products. The Cereals and Sugarbeet Office issues licenses to import raw sugar on the condition that the importer buys, at specified prices, certain quantities of the domestic sugar production equivalent to a certain proportion of the imported quantities. These programmes have escaped from public criticism and scrutiny, most probably because of the method of operation and financing.

41. Aside from being a heavy burden to the Government, the price support programmes of tobacco and sugarbeet, lead to serious mal-allocation of resources in the economy in general and in the agricultural sector in particular. The prices of these commodities, kept artificially high, have resulted in better returns to inputs used for their production than would have been possible with normal competitive prices. Consequently, distortions in rational allocation of resources have occurred and an optimal mix of produce has not been obtained. Furthermore, the distribution of benefits from these programmes has caused conflicts between regions and commodity producing groups and has emanated serious socio-economic frictions.

42. Another main issue is how long these substantial recurrent annual costs will continue to be borne by the government especially that these are likely to increase at a considerable pace in the future. The total annual cost to the Government is estimated to be nearly LL60 million in 1975.

43. It should be encouraging to note that there are very good possibilities of gradually curtailing and ultimately eliminating the price support to tobacco, sugarbeet and sunflower. Considerable areas under tobacco can be profitably replaced by mulberry trees; provision of irrigation facilities would particularly make the fodder production and integration of livestock production on large tobacco areas more remunerative than tobacco cultivation. The possibilities of raising other high valued crops would also be enhanced considerably. Other alternatives outside the regime of agriculture, like for instance establishing small scale industries, would be worth exploring. As regards sugarbeet lands, basic improvements in the land tenure system coupled with efficient extension services, supported by adequate technical information, would substantially widen the spectrum of crop and livestock

/...

enterprises on these lands. To name some, alfalfa, clovers, hybrid maize, vegetables, etc.. - suitably combined in rotations - and integrated livestock production would yield more returns than sugarbeet, especially considering that sugarbeet lands are among the best lands in the country and are favourably located for marketing the produce. If successfully explored, the exploitation of underground water on lands where sunflower is grown would make it possible to replace sunflower by a number of crops, grown in rotation, and livestock production integrated with crop production.

44. Among the programmes for price support of cereals (wheat, barley, maize) only the wheat programme has been operative. The wheat programme needs to be re-organized for extending its effectiveness and the programmes for barley and maize should be re-examined and adjusted in the light of the development prospects of these crops and the demand for these commodities. A well manipulated programme should give a great incentive to increase the production, especially through increasing the area under Mexican wheat varieties, hybrid maize and improved varieties of barley. However, it should be cautioned that the level of price support to cereals should be continually reviewed with respect to their production levels; in order to assure that these price support programmes do not become a burden to the society as has happened with tobacco and sugarbeet.

45. At present no facet of livestock and poultry production is given price support. However, there is prima facie a case for considering a temporary and limited price support and subsidy programme for some aspects of livestock and poultry production and marketing. One more evident aspect needing scrutiny is the granting of a temporary and selective price subsidy to egg exports to countries in the region where other countries are dumping eggs (for instance Iraq). Another aspect worth exploring is to provide feed grains and fodder at lower prices.

46. Aside from the annual recurrent cost of the price support programmes, considerable costs of development, incurred under the Green Plan, are indirectly borne by the Government. For this case it would be useful to make an economic appraisal of this programme. Also the economic feasibility should be calculated for investments to be made under this programme in various regions and on various types of land in the regions, to serve as guidelines for future investments.

/...

Further, it needs to be stressed that there is a lot of room to improve the follow-up of the investments made through the Green Plan, in order to derive optimal benefits. It may be noted that farmers have become quite aware of the Green Plan activities as is evident from the fact that these programmes have been extended to 50 per cent of the villages, although their coverage in these villages varies widely. It bears mention that because of political pressure and in the absence of implementation of any major irrigation project, there has been a tendency to distribute the funds of the Green Plan equally to the four provinces without employing any economic criteria for distribution of these funds. If in the future some major irrigation projects are undertaken, it should be possible for the Green Plan to concentrate its programmes more on the irrigated lands where, in general, the returns would prove to be high.

47. It is suggested that a high level interministerial commission be set up to examine the price support and price subsidy programmes and to adjust these in line with the objectives of development and the aims of the social policy, two main components of the welfare function of the country.

48. In the past Lebanese farmers have exhibited adequate initiative, good foresight in exploring production possibilities, keen acumen in marketing and sufficient entrepreneurship. Time and again, they also have expressed reluctance against government intervention beyond certain limits. In the future, the Lebanese farmer would most likely be willing to accept government intervention within reasonable limits, provided he will be convinced that such interventions will ultimately be in his interest and beneficial to the country. Although the latter trait of the Lebanese farmer constrains the intervention areas of the government, the dynamic elements in the farmer's character, suitably deployed, would be one of vanguards of development.

49. Closing up, it needs to be pointed out that the rational development of the agricultural sector would require substantial additional public sector expenditures and considerable adjustments in economic and fiscal policies. It is obvious that realization of the development aims has to be programmed over time and involves the spelling out of development priorities for this sector. As regards

/...

fiscal needs, it is worth noting that considerable savings can be effected by adjusting the price subsidy and support programmes. Further, at present there is no land tax collected from farmers (land tax Dec. 20 1951, was suspended on January 1, 1956) and the agricultural income is not taxed. The introduction of a progressive agricultural income tax with the exemption of taxing small and medium farmers, could raise substantially Government revenues. It would, therefore, be worthwhile to study the implications of such a tax system.

الجمهورية اللبنانية  
مكتب وزير الدولة لشؤون التخطيط  
مركز مشاريع ودراسات القطاع العام

Republic of Lebanon  
Office of the Minister of State for Administrative Reform  
Center for Public Sector Projects and Studies  
(C.P.S.P.S.)