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L'AGRICULTURE**

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**ANNEXE TECHNIQUE 18
EXTENSION, TRAINING AND AGRICULTURAL EDUCATION**



PROGRAMME DES NATIONS UNIES POUR LE DEVELOPPEMENT

**ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION
ET L'AGRICULTURE**

BEYROUTH, 1980



ETUDE DE RECONSTRUCTION ET DE DEVELOPPEMENT DE
L'AGRICULTURE

L I B A N

ANNEXE TECHNIQUE 18
EXTENSION, TRAINING AND AGRICULTURAL EDUCATION

Rapport préparé pour
le Gouvernement du Liban
par
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PROGRAMME DES NATIONS UNIES POUR LE DEVELOPPEMENT
ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE

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LISTE DES RAPPORTS PUBLIES DANS LE CADRE DU PROJET

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1. OBSERVATIONS RELEVANT TO EXTENSION, TRAINING AND EDUCATION

1.1 THE TARGET GROUPS OF EXTENSION AND TRAINING

Agriculture in Lebanon is very important although it is not the dominant sector of the national economy. It is a basic national industry and is very much an important part of the national life. As a basic industry, agriculture has a high political and social value. Its role in the national economy could still be improved, but compared to other sectors its relative contribution may remain relatively low. For example, in 1960 agriculture's share of the Gross Domestic Product (GDP) was only 12 per cent, while the services sector contributed 68 per cent. Industry and manufacturing made up 33 per cent of GDP. The declining relative contribution of agriculture is a common characteristic of a modern economy whose non-agricultural sector is developing rapidly. This trend is generally accompanied by a decline in the percentage of the labour force in agriculture, and is apparent in Lebanon. In 1960, 38 per cent of the labour force was in agriculture, but in 1977 it was estimated to be around 13 per cent only. With an estimated total population of 2,151,000 in 1965, the active population in agriculture was placed at 626,000 or 29 per cent. In 1976 the country's population was estimated to be 2,959,000 and the active population in agriculture was estimated to be 399,000 or 13.5 per cent. These figures illustrate that the decline in agricultural population is not only in proportion to the total population but also in terms of absolute numbers.

However, this phenomenon can be favourable to the development of agriculture. In a country where agricultural land is limited, the decline of agricultural population could mean more land for those who stay behind (assuming that those who leave agriculture sell or rent fairly their land to those who remain), and greater demand for agricultural products from the non-agricultural sector. However, this probable development was not apparent partly because in Lebanon agricultural land is seldom sold when the cultivator moves to the city and partly because of the system of inheritance whereby the city member of the family retains ownership of his share. Furthermore, several observers argue that although the number of farm dwelling families has decreased, several city dwellers continue to farm on a part-time basis.

In examining the farming population as the target clientele of agricultural extension, the data contained in the Lebanon country report to the World Conference on Agrarian Reform and Rural Development was used. The data as shown in Table 1 indicate the distribution by province of the agricultural population and farm holdings. In the 1970 agricultural census, there were 967,157 people residing on a total of 142,811 holdings. The number of people residing on the holdings is not important in this analysis because the figure includes the children and those who work outside agriculture. What is important is the number of holdings which may be interpreted as more or less similar to the number of farming families or number of actual farmers. If two persons actively

work on each holding there would have been 283,622 people in farming, or if an average of three persons work on each holding there would have been 428,433 people in farming. This figure is not too far off the 1977 estimate of active labour force in agriculture.

Table 1. Farm population and farm area in Lebanon according to the 1970 agricultural census

	Farm population ^{a/}		Population residing on the holdings ^{b/}		Number of holdings		Area of holdings		Total land area
	Numbers	Per cent	Numbers	Per cent	Total	Per cent	Hectares	Per cent	Hectares
North Lebanon	348,941	33	339,062	35	48,244	34	148,713	24	198,117
Mount Lebanon	241,196	23	216,995	22	35,600	25	81,083	13	195,040
South Lebanon	193,397	19	180,709	19	26,706	19	129,540	21	200,058
Bekaa	259,592	25	230,391	24	32,261	22	260,290	42	428,028
Total Lebanon	1,042,592	100	967,157	100	142,811	100	619,626	100	1,021,243

Source: Ministry of Agriculture, Bureau of Agricultural Economics and Statistics.

a/ Farm population includes the holder's family members not living on the holding. In Lebanon this number is expected to be large because of migration to urban centres and temporary emigration (Arab countries in particular).

b/ The farm population actually residing on the holdings.

It is important to point out that the distribution of holdings and areas of holding by province are quite different. The largest number of holdings are in North Lebanon followed by Mount Lebanon. However, the average holding size is largest in Bekaa, 8.07 hectares followed by South Lebanon, 4.85 hectares. The smallest holdings are in Mount Lebanon, 2.28 hectares and in North Lebanon, 3.08 hectares on average.

The average land holding appears big. But when one examines the distribution of holdings according to size (Table 2) a different consideration for extension emerges. Actually, 33.2 per cent of the holdings are 0.5 hectares and under and another 30.8 per cent are between 5.0 to 2.0 hectares. Another 18.7 per cent of the holdings are between 2.0 to 5.0 hectares. Therefore, the majority of the farm holdings (64 per cent) are under 2 hectares in size. By province the highest proportion of 0-2 hectares holdings is in Mount Lebanon, 79.2 per cent followed by

North Lebanon at 67.2 per cent. About 64.9 per cent of South Lebanon and 41.9 per cent of Bekaa land holdings are of 0-2 hectare size.

Table 2. Number of holdings, by size of holding and by mohafazat
(Hectares)

Size of ^{a/} holding	Number of holdings by province					Percentage
	North Lebanon	Mount Lebanon	South Lebanon	Bekaa	Total	
0 - 0.5	15,325	17,597	9,131	5,387	47,440	33.2
0.5- 2	17,103	10,603	8,200	8,147	44,053	30.8
2 - 5	8,667	4,538	4,761	8,843	26,809	18.7
5 -10	4,208	1,629	4,422	4,954	13,213	9.3
10 -20	1,737	619	1,097	2,238	5,691	4.0
20 +	1,204	614	1,095	2,692	5,605	4.0
Total	48,244	35,600	26,706	32,261	142,811	100.0

Source: Ministry of Agriculture, 1970 agricultural census data, unpublished.

^{a/} For 3,319 holdings the size is not reported. These holdings are distributed proportionately over other size categories.

For purposes of determining the target clientele of extension, there are two kinds of farmers in relation to employment, namely: the full-time farmers and the part-time farmers. There were no available figures on the number of full-time and part-time farmers but this is better determined at the field level. In general, the part-time farmers are located near Beirut and other urban centres as well as those located close to vacation resorts. Part-time farmers would tend to have higher formal education than the full-time farmers. More and more professionals from the city are buying agricultural land which they manage on hired labour.

A further consideration are the different types of farming in Lebanon. While figures are not available it is important to mention that Lebanese agriculture is quite heterogeneous. The major categories would include irrigated and non-irrigated farming, upland and plains farms, animal, horticultural and grain farming and, recently, greenhouse farming of vegetables and flowers. Several indicators of modernization are evident. For example, in 1972-74 about 24 per cent of the cropped land was irrigated and this has increased since. For the same period, the rate of fertilizer consumption was 142 kilograms per hectare and the tractor density was 8.7 units per thousand hectares.

While significant advancement has been achieved in the process of modernizing Lebanese farming, low productivity remains a problem. In general, the Lebanese farmer will continue to need training and extension services in the areas of soil conservation and development; water utilization and management; cropping patterns that match soil, climate and market demand; use of best planting materials/and animal stocks; prevention and control of pest and diseases of plants and animals; proper plant and animal nutrition; post-harvest handling; use of labour saving techniques; mechanization and adoption of new production techniques such as green-housing, etc.

In scope, the overall need for agricultural extension may be viewed in terms of the number of farming families of the 142,800 farm holdings located in about 1500 to 1700 villages of the entire country. As a consideration for agricultural extension, these villages have been classified into four types, namely:

- a) mountain villages which are becoming summer resorts or centres for winter sports, thus farming is becoming part-time;
- b) mountain villages which are still rural;
- c) mountain villages and those in Bekaa operated by city businessmen and professionals;
- d) villages in the plains prosperously raising cash crops. There are no available figures as to the number of villages under each category.

1.2 THE AGRICULTURAL EXTENSION SYSTEM

1.2.1 The present situation

Agricultural extension is necessary to get Lebanese agriculture developed further. All recent documents strongly recommend to give adequate attention and to strengthen the agricultural extension service in Lebanon. Interviews with farmers, local leaders, officials of the Ministry of Agriculture at all levels, officials of the Ministry of Cooperatives and Housing and people in the non government organizations indicated a strong agreement on the need for agricultural extension. However, different views were expressed on how the extension service could be provided effectively to the farmers.

Lebanon has about twenty-five years experience in providing agricultural extension service to farmers through the Bureau of Agricultural Extension of the Ministry of Agriculture. Unfortunately, this important educational service for farmers has practically ceased to function since the start of the conflict in 1975. At least until April 1980 the staff of the service were still drawing their salaries, but not performing extension work. Most extension workers claimed to have stopped going to the field for security reasons.

At present, the urgent need for agricultural extension, especially in the remote rural areas, is being partially met by the private sector as a de facto. The private farm supply firms were actively providing farmers with advice together with the inputs they sell. It was observed by several informants that several of the recommendations were not neces-

sarily favourable to the farmers. Another de facto development, is the credit and extension services being provided by the Save the Children Foundation (SCF), a non-government organization, which as of April 1980 was covering 40 villages in four locations, Table 3. Information provided by the SCF suggests that only about two-thirds of the population listed in the villages are actually residing there.

Table 3. The coverage of Save the Children Foundation Agriculture Assistance Project

Location	Number of vil- lages in the survey	Population listed	Actual residents	Per cent retained
(1)	(2)	(3)	(4)	(4/3)
South Lebanon	19	68,000	44,350	65
East of Tyre	4	13,600	12,470	92
Bekaa	8	37,438	23,400	62
North Lebanon	9	53,900	34,250	63
Total	40	172,938	114,470	66

Source: Save the Children Foundation, Lebanon Field Office "Beneficiaries within Impact Areas" as at February 15, 1980.

1.2.2 Extension before 1975

The Agricultural Extension Service was examined during a two-year period before the Lebanese conflict to get an overview of its status during a normal situation. In the Ministry of Agriculture, extension was one of the four bureaux under the Department of Joint Services. The Department of Joint Services is one of six other Departments which make up the Ministry of Agriculture. The other three bureaux under the Department of Joint Technical Services are Agricultural Education, Agricultural Economics and Statistics and Rural Engineering. From this general view of the structure of the Ministry of Agriculture and considering the magnitude of the agricultural sector, one notices too many Departments and autonomous bodies. Agricultural Extension is too small a part of the agricultural administration. It has been argued that agricultural extension work is carried out not only by the Bureau of Agricultural Extension but also by bureaux of three Departments and by four of the five autonomous bodies, including the Agricultural Research Institute.

The Bureau of Agricultural Extension has three main functions:

- (i) to provide agricultural extension services for farmers,
- (ii) to provide training for farmers and
- (iii) to undertake any other necessary work such as rural youth clubs, radio broadcasting, publications and film shows to help farmers improve their farming practices.

The organizational structure of the Bureau of Agricultural Extension consists of a national office, four regional branch offices and 22 extension centres. This vertical structure seems to be appropriate for Lebanon. However, the set-up at the national office requires some re-consideration in order that it could provide the support needed in the field. It seems that a strong field operation unit together with a team of subject matter specialists are needed in the national office.

The manpower of the Bureau of Agriculture Extension at its best condition consisted of 4 professionals (university agricultural graduates) and 48 technicians (intermediate agriculture). The 52 personnel were distributed as follows:

Location	Professionals	Technicians
Headquarters (Beirut)	2	5
North Lebanon	-	10
Mount Lebanon	1	12
South Lebanon	1	10
Bekaa	-	11
Total	4	48

In April 1980, the national office did not have a chief nor did it have any of the four professionals.

The performance of the agricultural extension service in Lebanon has been an issue of considerable interest to many people. With 43 technicians in the field the expected coverage per technician would be about 35 villages (on the basis of 1500 villages in Lebanon). Alternatively, based on the 142,811 farm holdings, one extension technician would have to cover 3,321 holdings or farming families. If one extension agent should cover 7 to 8 villages, the 43 agents could cover only 15 per cent of the total villages. The 7 to 8 village coverage per agent would be equivalent to about 665 to 760 farm holdings per extension agent. In general, this ratio seems reasonable and is within the FAO/IWP recommendation for 1965-85 for the Near East Region where one agent should work with 1000 families on non-irrigated areas or one agent per 500 families in irrigated areas. Assuming that an equivalent of about one-fourth of the technical personnel in the regions of the different services and autonomous offices perform agricultural extension work, it would raise the number of agricultural extension agents in the frontline to an equivalent of 100 agents (43 from the Bureau of Agricultural Extension and 57 from the different departments/autonomous offices), Table 4.

This increases the ratio of agents and villages from 1:35 to 1:15. Even with this ratio of 1:15 villages or one extension agent to about 1425 farm families it is no surprise that many farmers in the villages visited claimed that they had not seen or had not received technical assistance from government agricultural extension workers even before the 1975 conflict.

Table 4. Number of personnel with training in the agricultural and related fields distributed over professional and technical categories and according to service/autonomous office, 1974

(Numbers)

	Regions		Headquarters	
	Profes- sional	Techni- cal	Profes- sional	Techni- cal
Agricultural Resources Service	11	19	8	10
Animal Resources Service	10	22	6	15
Forestry and Natural Resources Service	3	9	5	8
Joint Technical Services	12	57	7	9
Agricultural Engineering	(0)	(0)	(3)	(0)
Agricultural Economics	(1)	(6)	(1)	(4)
Agricultural Education	(8)	(8)	(1)	(0)
Agricultural Extension	(2)	(43)	(2)	(5)
Agricultural Research Institute	33	57	0	0
Animal Production Office	5	13	11	33
Fruit Office	4	18	11	15
Green Plan	25	77	23	24
Silk Office	0	0	8	9
Total	103	272	79	133

Source: Asliturk, Report on extension and education, FAO, 1975

1.2.3 Problems of extension

In any effort to rehabilitate and strengthen agricultural extension, the following problems must be given serious attention:

- 1) The quantity and quality of front-line agricultural extension agents. With whatever criteria one takes, all evidence clearly

points to the problem of an inadequate number of agricultural extension agents in Lebanon. Farmers in isolated or faraway places could not be reached by the present number of staff, while those around the cities who have consulted the extension agents clamoured for better trained extension agents.

- 2) The lack of new information by farmers. Both the extension agents and the clientele report this problem. This can be attributed to several reasons. Within the Bureau of Agricultural Extension itself, there is lack of a dynamic team of subject matter specialists who are supposed to keep the extension agents up-to-date through training and guidance. Within the Ministry of Agriculture, there is a lack of a functional linkage between the research and extension services.
- 3) The "maintenance orientation" of agricultural extension. The problem is serious when extension officials and agents believe that nothing more can be done to improve farming except when something serious happens like outbreak of pests and diseases. When extension agents prefer to wait in their offices for farmers to visit them for advice, it is a sure sign that the agricultural extension service is not functioning properly and it is not worth the support of tax payers' money.
- 4) The absence of interdependence amongst extension, cooperatives, input supply and credit. When carried out separately, as has been the case even before 1975, the effectiveness of each service is minimal. For example, in a community where there is a farmers' cooperative, the extension agent can reach more farmers per unit time through the cooperative. At the same time the cooperative is reinforced and more farmer members are likely to benefit from such an arrangement.
- 5) Leadership and support to agricultural extension service. Without a dynamic and dedicated knowledgeable leadership in agricultural extension, it is difficult to expect beneficial results. Lebanon claims to have many trained leaders in the area of agricultural extension but they are not attracted to this kind of service. Could this not be due to lack of an attractive and realistic support?
- 6) Related to number 3) above is the apparent lack of an extension action programme based on an actual analysis of the farmers' problems. This cannot be done without the strong and knowledgeable leadership of the service and without a cadre of well trained extension agents who actually work with farmers.
- 7) While spending too much time on reporting on extension is undesirable, it was apparent that a practical monitoring and evaluation of the activities of the agricultural extension service is a necessity. One of the reasons why extension services usually lack support could be due to the lack of specific information on its activities, accomplishments and problems. For example, what impressed many people about the agricultural

development projects of the Save the Children Foundation was the monitoring of its activities and presentation of its activities and problems in terms of figures.

1.3 TRAINING AND AGRICULTURAL EDUCATION

1.3.1 The present situation

The Ministry of Agriculture has the mandate to train technical manpower in agriculture. For high-level manpower training in agriculture (university and graduate levels), Lebanon has traditionally depended upon the Faculty of Agriculture and Food Sciences (FAFS) of the American University in Beirut (AUB), a private institution established in 1952. The FAFS which considers the whole Near East as its service area did not cease to operate, even in the years of conflict. During the 1956-77 period, it had 554 graduates with B.S. degrees, of which 43 per cent were Lebanese, and another 619 graduates with M.S. degrees, of which 19 per cent were Lebanese. In addition, many Lebanese study agriculture in other countries notably in Europe, USA and Egypt.

In October 1979, the Lebanese Government created a Faculty of Agriculture and Veterinary Medicine (FAVM), as part of the University of Lebanon. A Dean has been designated and the FAVM is expected to start operating in October 1980. Classes for the first 30 to 50 students could begin in October using different facilities in Beirut, but the FAVM is far from being prepared to operate in its intended campus in the Bekaa region. There is a need for assistance in planning the technical aspects of the FAVM and perhaps in its initial operation. With the creation of the FAVM and the claimed unemployment of several agriculture graduates, the tough question to be asked is where will its graduates be employed?

At the technical level, the agricultural schools under the Ministry of Agriculture have stopped operating except the Fanar Secondary Agricultural School. The present instruction programme is far from normal. Students' attendance and discipline are serious problems. In fact, the present class of 23 students is split into two sections: one for the east and the other for the west of Beirut.

The three primary agricultural schools in Abde (North Lebanon), Ghazir (Mount Lebanon), and Nasrieh (Bekaa) have been vandalized and are not in operation.

1.3.2 Agricultural education and training before 1975

Two documents provide a clear description of the situation of agricultural education and training before 1975, namely "Intermediate Agricultural Education and Training in Lebanon discussed at an FAO Ad Hoc Consultation on the Planning and Methodology of Intermediate Agri-

cultural Education and Training", Khartoum, 1971, and "Various Institutions and Services Operating in the Agricultural Sector in Lebanon", by Prof. Fawzi Al-Haj.

As seen from Table 4, the Bureau of Agricultural Education has eight professional and eight technical staff as regular administrators and instructors of one secondary school of agriculture and three primary agricultural schools. Actually, the 16 staff were not the only instructors of the schools. Several part-time instructors from the other services of the Ministry of Agriculture were enlisted to teach certain subjects. The three primary agricultural schools and the only secondary agricultural school of the Ministry of Agriculture were very small-sized. Between 1970-71 and 1980 the Fanar high school had an average of 20 graduates annually. The Abde primary school had 67 graduates or an annual average of eight graduates, while the Ghazir school had 77 graduates or an annual average of ten graduates during the 1967-74 period. The school in Nasrieh, Bekaa was not yet operating when the events occurred. To improve the usefulness of the schools in Abde and Ghazir, innovations were carried out to include non-formal training in the form of short courses for farmers. For the period 1967-74 Abde reported 348 trainees or about 43 farmer trainees annually while Ghazir had 449 trainees for that same period or 56 annually. This innovation considerably strengthens the usefulness and relevance of the two primary schools. Such an innovation may have a higher justification for support than operating the school in a purely formal education programme.

Mention needs to be made of a private agricultural high school in Nabatieh, South Lebanon, which was established in 1970-71. In 1971-72 it had 43 BT1 graduates. This number decreased to 24 in 1972-73, 13 in 1973-74 and only 10 in 1974-75. In 1973-74 it also had 34 BT2 graduates but only 14 in 1974-75. It completely stopped operating in 1975-76.

1.3.3 Problems observed

Efforts to pursue a relevant and effective agricultural education programme should consider the following realities and problems:

- 1) In the years before 1975 and more so at present, the demand side of agriculturally trained manpower is vague. While there is clear evidence of demand for trained agricultural manpower at different levels of the manpower structure, it is not clear how many are needed each year. At this stage of national experience, the traditional method of manpower requirement assessment may not be able to show the real picture. An exercise of estimating the national manpower needs of agriculture should not be confined to the traditional employers such as the Ministry of Agriculture. It should necessarily include the overall and sectoral long-term plans of government, particularly agricultural credit, rural cooperatives, rural development and those in the private sector such as marketing, input distribution, greenhousing and related industries, agro-based processing, and even privately operated agricultural

services such as consulting firms.

- 2) The supply side of trained agricultural manpower should be a relatively easy issue to resolve considering the size of the country. However, considering that many Lebanese study abroad, it is not, in practice, easy to plan and operate an educational programme that will meet the estimated manpower required by the country. Furthermore, since Lebanon is traditionally an "exporter" of trained manpower, this factor, which is not easily predictable could upset either the demand or the supply side of trained manpower in agriculture.
- 3) There are some observers who argue that it may not be necessary for the Ministry of Agriculture to operate an intermediate agricultural school, especially with the establishment of the FAVM. However, when one closely examines the personnel structure of the Ministry of Agriculture, it becomes clear that, indeed, one good intermediate agricultural school is essential for Lebanon. When one considers the demand for middle-level agriculturists in the Ministry of Cooperatives, in the private services sector (marketing, input supply, processing, etc.), the more recent interest in mechanization, irrigation and greenhouse farming, one cannot ignore such a great demand. The problem therefore is not whether Lebanon should have an intermediate school or not, but rather one of size and relevance of instruction programmes to meet the changing demands of skilled manpower in agriculture.
- 4) Considering the small attendance of the two primary agricultural schools in Abde and Ghazir (despite good holdings and facilities before the 1975 events and the practice of paying students to study in the school), the question is: Does Lebanon really need this kind of vocational agricultural school? It was planned in 1975 to establish one primary school at Sour, South Lebanon and five more after this. In the light of the experience with the schools in Abde and Ghazir, it is highly advisable to define the intended clientele and service area of each proposed school and objectively determine the actual need in terms of number of young people interested to study in this kind of school. If the number interested is too small, there would be no justification to establish one or even to re-establish Abde and Ghazir. If the schools are to be converted into farmers' training centres which will include programmes for training future farmers/young farmers, adult farmers and rural women, there can be strong justification to have one training centre in each province provided these training centres will have strong relations with the agricultural extension centres or offices. Any attempt to establish more than four centres will weaken its effectiveness, due to the lack of a critical mass of expertise and the unnecessary high cost for administration instead of actual action.
- 5) In a situation where there are many university graduates of agriculture who cannot find jobs and where there is a well-

established faculty of agriculture with high standing, it is a difficult problem to design and establish a new faculty of agriculture and veterinary medicine. On purely economic grounds, it is clear that, for as long as the FAFS continues to supply the high-level manpower needed in agriculture, an additional faculty of agriculture in the country is not needed. However, for nationalistic and other considerations which may not be fulfilled by the existing private faculty, a new faculty may be justifiable, if less so for education in veterinary medicine. First, such an instruction must have the purpose of serving as a national instrument for agricultural and rural development. Second, it must open an opportunity to bright and talented rural youth who otherwise could not afford university education in an expensive private institution. Third, it should adopt an agricultural research programme with a strong bias to solving national agricultural problems which other institutions may not have the interest or capability to undertake. Fourth, as the apex of agricultural institutions of learning in the nation, the faculty should adopt a programme of continuing education in agriculture.

1.4 AGRICULTURAL RESEARCH AND EXTENSION

Agricultural research is carried out both in the public and private sectors. In the public sector, research is entrusted to the Agricultural Research Institute (ARI). Significant research work in the non-government sector is carried out by the Agricultural Research and Education Centre (AREC) of the American University in Beirut. In addition, the International Centre for Agricultural Research in Dry Areas (ICARDA) has a station in the Bekaa.

In April 1980, agricultural research work was continuing although not at the level that it used to before the conflict. The research of ARI was going on at its Animal Health Station in Fanar and to a very limited extent in Tell Amara. But the work in the other stations was disrupted. However, at AREC the research work is in full swing.

In viewing ARI against the requirements of its research work, its scope of coverage as well as its autonomy are satisfactory. It has the biggest number of professionals, Table 4, but spread over several locations. Only two aspects of its set-up seem to need some adjustment, namely:

- i) the tendency to spread its resources instead of creating a critical mass in one location
- ii) the lack of a formal operational linkage with agricultural extension service.

1.5 RELATED SERVICES AND INFRASTRUCTURE

The performance of agricultural extension and training are generally affected by a number of related services to the farming population. The related services include input supplies, credit, market and farmers' organization. Infrastructure includes roads and transport, irrigation and rural electrification. Lebanon has a well-developed private sector that provides farm supplies and equipment. It appeared that while farm credit is being encouraged by the government the present service is not yet adequate. Marketing farm produce seems to be neglected at the village level although Lebanon's agricultural export activities are well developed.

The Lebanese is commonly characterized as highly individualistic and this is supposed to be true with Lebanese farmers. This characterization seems not to be completely correct because the Lebanese farmer has a strong sense of belonging to a group. Although the need to belong is generally fulfilled within family lines, it is believed that the farmers must have a functional organization which will not only fulfill the need to belong, but would serve as a collective facilitator to their development and family wellbeing. In this connection, the Ministry of Agriculture used to have a cooperatives service which was phased out with the establishment of the Ministry of Cooperatives and Housing. The present cooperatives programme started in 1971. In 1974, out of 104 cooperatives, 64 were classified as agricultural cooperatives with a membership of 4007. By 1976, there were 67 agricultural cooperatives with 4144 members. As a possible channel for agricultural extension, the present number of agricultural cooperatives is still very low. It covers only two per cent of the estimated number of farming households in the country. But if agricultural extension work could be started with the 67 agricultural cooperatives, it may contribute to the improvement of members' productivity and the promotion of cooperatives. On the other hand, it would increase the efficiency of agricultural extension to work through the agricultural cooperatives in places where they exist.

It was observed that in general, the infrastructure is favourable towards making extension efficient and effective. The road and transportation facilities as well as rural electrification reach practically all the villages. Although irrigation is still considered a major problem, more and more support is being given to the establishment of irrigation systems. The efficient utilization and management of available water is still a problem. Agricultural extension could in fact contribute to make the needed improvements in this area.

2. RECOMMENDATIONS

2.1 IN AGRICULTURAL EXTENSION

2.1.1 For immediate action

Visits to the villages indicate clearly the urgent need for the Ministry of Agriculture to provide agricultural extension services, especially to the full-time farmers in the out of city areas. These farmers have not stopped farming despite the difficult security situation in the country. It was also evident that these farmers were encountering many problems associated with the lack of technical advice and guidance.

Recommendation 1: Activate the Agricultural Extension Service as a matter of high priority.

Without waiting for the implementation of the reorganization of the Ministry of Agriculture, this service can be activated. It can adopt a basic organizational structure which can easily fit into a restructuring of the Ministry of Agriculture (see attached proposals as Annex 1 and Annex 2). Under this recommendation the following actions are essential:

- i) Choose and appoint the chief of extension;
- ii) draw up a problem-solving oriented extension programme (framework plan);
- iii) identify cases and villages where agricultural extension is urgently needed and possible;
- iv) train or retrain the professionals and technicians, some abroad but mostly in Lebanon using the AREC, ARI and SCF facilities, experiences and staff in addition to a strong orientation to the new extension orientation outlined in the framework plan;
- v) field teams of extension agents to the priority areas selected. Care should be taken to match each agent with local acceptability. The first action of the agent will be to plan with the farm people their local extension programme and activities based on their problems and needs.
- vi) establish a formal operational linkage with the ARI and AREC. Annex 1 shows a liaison office in the Extension Service Bureau. The research institutions should be requested to create or designate specialists who can liaise and work together with the extension liaison specialists.
- vii) establish formal arrangements with the Ministry of Cooperatives on the following:

- Each agricultural cooperative should have a committee on education or extension
- Through this committee the agricultural extension agent in the place where a cooperative exists can develop a programme of activities, provide training and similar extension activities for the benefit of member farmers.

viii) Monitoring of extension activities. The extension agents must not be requested too much report preparation and reporting. But it is essential that the nature and scope of work of each extension agent is accounted for as a management tool and for accounting purposes. In general, extension accomplishments are underreported and as a consequence many extension services do not get a fair support.

Alternatively, if activating the agricultural extension is not yet considered possible due to security reasons, it is recommended that the Ministry of Agriculture should allocate money or raise money from external sources for agricultural extension purpose and adopt a subcontracting scheme with non-government agencies like the Save the Children Foundation to do the work. These organizations may temporarily be subcontracted to do the work under the Ministry's general supervision. But provision needs to be made that, as soon as security improves, the Ministry's extension agency will again start its operations fully.

2.1.2 For the longer range up to the year 2000

The need for farming improvement continues indefinitely. The role of extension may change in substance and approach at different stages of development but it will continue to be an essential component of the total agricultural and rural development process.

Recommendation 2 Adopt a realistic ratio of front-line extension farming families

Obviously, the number of farming families is too high for 43 extension agents to cover efficiently. This factor alone could explain a big part of the lack of effectiveness of extension, even before 1975. Therefore, a realistic workload for the extension agents must be worked out if extension is to make a real contribution to farming improvements and agricultural development. To begin with, two basic questions must be asked:

- i) Considering the use of a combination of known extension methods and approaches (farm visits, group teaching, demonstration, mass media, etc.) and recognizing a given set of farming conditions in a given area, what load of work can the average extension agent carry out reasonably well and efficiently?
- ii) What ratio of extension agents and farming families could be justifiable in terms of cost and return? Cost refers to the salary of the extension agent plus the cost of administrative and technical backstopping, including transportation and sup-

plies used in the work. Return refers to the aggregate increase in the production of farmers covered as a result of using learned improved farming practices and technology.

To arrive at satisfactory ratio or workload for extension agents, the following criteria may be considered:

	<u>Agent/farmer ratio</u>
a) Single crop farming	low
b) mixed cashcrop farming	medium
c) mixed food and cashcrop farming	high
d) high level of education of farmers	low
e) low level of education of farmers	high
f) poor roads and transport	high
g) good roads and transport	low
h) low population density, families widely dispersed	high
i) high population density, families living close together	low
j) strictly individual extension approach	high
k) strictly group extension approach	low
l) mixed individual and group approach	medium
m) single problem focus	low
n) multiple problem focus	high

This approach implies that the ratio within the country will be variable depending upon the relevant factors being considered. Without applying a rigorous test, if a ratio of say 500 to 800 farm families is considered acceptable, at least for national planning purposes, it may be justifiable to plan for less than 100 extension agents to serve the country's full-time farm population.

Recommendation 3: In the medium-term, the Ministry of Agriculture should establish a Central Information and Exhibition Centre as part of the general function of Agricultural Extension.

2.2 IN TRAINING AND AGRICULTURAL EDUCATION

2.2.1 For immediate action

The disruption of agricultural education at the intermediate level and the changes in the employment pattern of the graduates at this level during the past five years require a determined effort to put the agricultural school at Fanar in a sound operational programme. Because of the problems of underutilization of the Abde and Ghazir vocational agricultural schools, even in the years before the conflict, it is necessary that the orientation of these schools be carefully examined and the necessary modifications made to make them functional training centres for agricultural and rural development.

Recommendation 4: Make the necessary provisions for the immediate rehabilitation and development of the Fanar Intermediate Agricultural School along the lines of the action plan proposed in Annex 3.

Under this recommendation the following major activities need to be undertaken:

- i) Re-examination of the general agricultural development directions of Lebanon and the job requirements of the different employment demands for technical agricultural graduates in the Ministry of Agriculture and in the private sector.
- ii) Re-examination and modification of the school curricular programme to meet the skills and technical know-how required at the middle level by specific subsectors of the agricultural sector.
- iii) Draw up an overall rehabilitation and development programme for five to ten years, including a systematic work experience scheme for students given fields of specialization such as greenhousing, farm mechanization, agricultural extension etc.
- iv) Develop a training and staff development programme for the regular teaching staff and a system of accrediting resource teaching staff.

2.2.2 For long range consideration up to the year 2000

In the overall development strategy, the major role of the Fanar Intermediate Agricultural School will continue to be as the supplier of middle-level technical manpower requirements of the Ministry of Agriculture and the private sector. In addition, the school should be designed to perform an additional role which is to provide up-grading short courses for its pupils whose jobs require the constant upgrading of the employee.

Recommendation 5: Additional functions must be assigned to the Fanar school to include a regular programme of up-grading the middle level manpower of the agricultural sector (public and private).

For the requirements of Lebanon one good middle school appears to be sufficient, therefore, it is not recommended, that even in the long-term perspective, any additional school of this type be considered. It is preferable to continue developing the Fanar School for it to reach a certain level of status and that it can perform other functions such as providing upgrading of courses. To be able to take on this greater role, the following should be considered:

- i) If a better school location can be found (Bekaa), it would be preferable to its present location.

- ii) The school should have a regular working relationship with the different research institutions in order that (a) new research findings can always be included in appropriate instructional programmes and (b) the teachers may be able to participate in research activities in their fields of specialization.
- iii) The school should also have a regular linkage with the agricultural extension service in order that (a) the school instructors become aware of the problems and needs for upgrading of extension agents and for revision of curricular programmes for extension agents, (b) some outstanding extension officers may be used as resource instructors on extension and (c) specialists in the school may be able to serve as specialist backstop in some extension situations.

Recommendation 6: At the level of primary vocational agricultural schools, it is recommended that a thorough examination of social and actual demand be conducted before a decision is made for their rehabilitation or development. Such action could be covered by the proposal in Annex 3. The task will include:

- i) Survey of the number of rural youth interested in such kind of school in any given service area.
- ii) Inclusion in the survey of needs and interests of farmers and rural women for short training courses to meet specific needs.
- iii) Full analysis of the costs and benefits of the school.
- iv) Tackle the refugee problems on the three school compounds.

2.3 UNIVERSITY AGRICULTURAL EDUCATION

Since a political decision has been made to establish a Faculty of Agriculture and Veterinary Medicine in the University of Lebanon, the Ministry of Agriculture cannot escape its full implication for the future operation of the Ministry and the agricultural sector in general. Therefore, the Ministry of Agriculture should take an active part in the planning, operation and utilization of this institution.

Recommendation 7: Immediately, technical assistance for the planning and development of the specific instruction and research programme of the newly created Faculty of Agriculture and Veterinary Medicine should be requested. This recommendation is part of a project proposal in Annex 3. The major tasks will include:

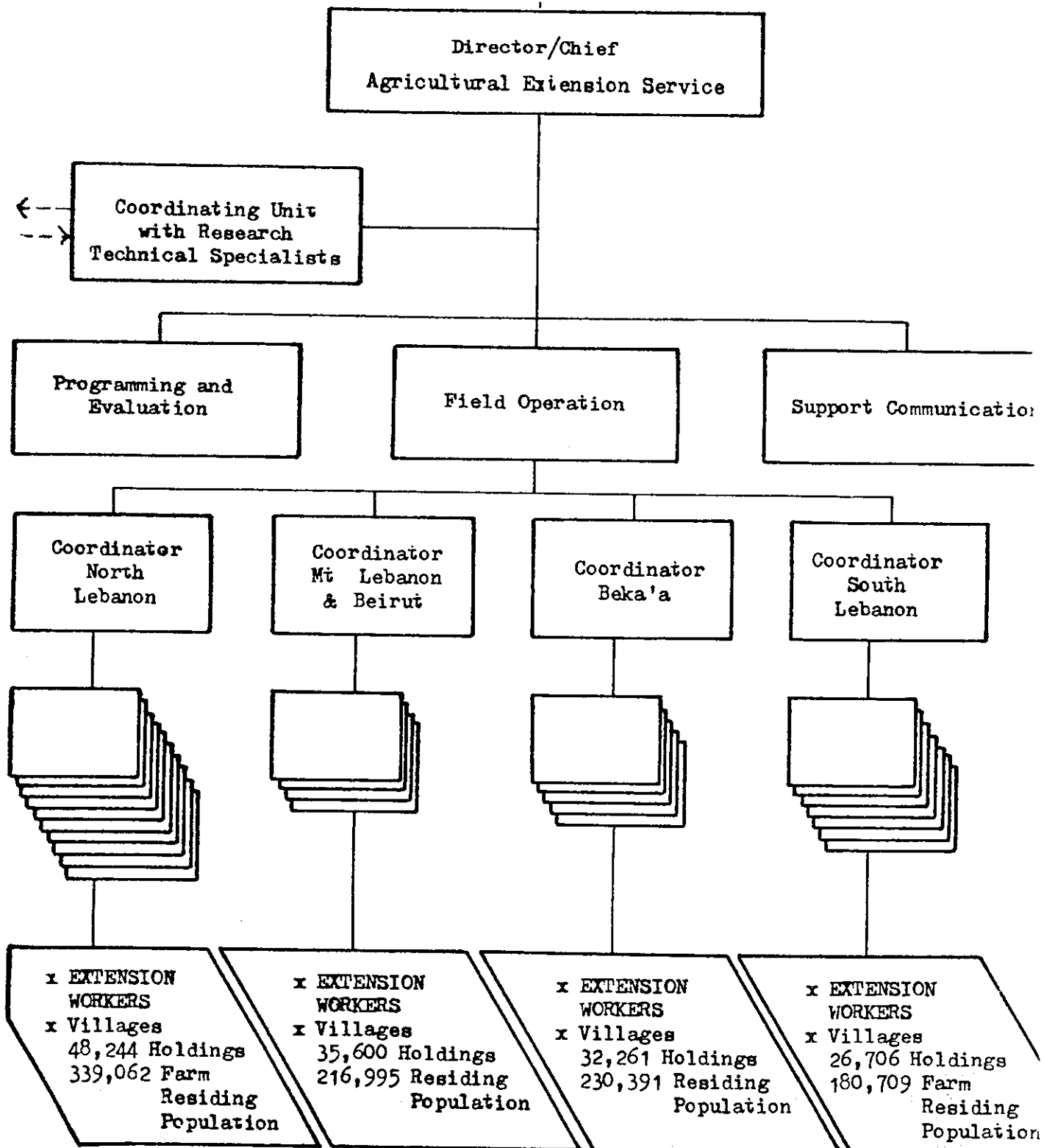
- i) Technical assistance in planning the overall programme of the faculty;
- ii) technical assistance in the planning of the plant sciences institutional and research programme;

- iii) technical assistance in the planning of the animal sciences instructional and research programme (and also, veterinary medicine, if this section is to be maintained);
- iv) technical assistance in the planning of the faculty's campus and research station; and,
- v) determining the advisability of adopting an institutional twinning scheme to develop the faculty for a ten-year period.

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4. "Agriculture in the Lebanese Economy: The Rural Economics Institute" by Adel Cortas and Abdus Sattar, February 1968
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PROPOSED ORGANIZATIONAL SET-UP FOR AGRICULTURAL EXTENSION SERVICE



Source of number of holdings and farm residing population is the Lebanon Country Report in the World Conference on Agrarian Reform and Rural Development.

Annex 2

PROJECT PROPOSAL: ACTIVATING AND REHABILITATION OF AGRICULTURAL EXTENSION

Implementing Agency: Ministry of Agriculture
Duration: One year
Estimated date of commencement: As soon as possible
Donor's contribution: \$244,000
Government contribution:

Background and Justification

At this stage of Lebanon's national situation, the full-time small farmers urgently need agricultural services. The work of the Save the Children Foundation (SCF) in rural credit and extension is essential because the government extension service is, practically speaking, nonexistent. Farmers, especially those far from Beirut, are continuing to farm but have not received any agricultural advice for the last five years, although they are faced with many technical problems. The government as well as the private sector, has several initiatives that provide the farming population with infrastructure and material assistance. Irrigation, farm machinery, greenhousing, farm chemicals, etc. are being made available to farmers but without the necessary back-up advice and guidance. It is estimated that although it will not be practical at this time to cover all 1700 villages, a number could be assisted as starting points from where expansion could be gradually made as conditions permit. However, before extension can render a service even to a limited extent, a programme of action needs to be drawn up, specialists and technicians have to be retrained, the organization put into shape and facilities restored. The inertia is rather widespread. Unless external assistance is provided this important agricultural service may not be able to start operating until it is too late.

Development Objectives

The ultimate development objectives of this project is to contribute to the improvement of farming efficiency, practices, production and income, particularly among the full-time small farmers in isolated locations. Through a rehabilitated problem-solving agricultural extension, the participating farmers could reduce the waste of time, money and effort caused by the trial-and-error method of initiating new agricultural practices. They could learn new skills faster and the proper application of new technologies. The service would increase the number of farmers able to adopt appropriate practices and technologies to cover larger areas of land. This service, if carried out properly, is expected to contribute to the normalization and stabilization of conditions in the rural areas of Lebanon.

Immediate Objectives

Specifically, the immediate objectives of this project are as follows:

- i) To activate to operational level the agricultural extension service within eight months from the start of the project.
- ii) To develop the Extension Action Programme for five years.
- iii) To retrain the professionals and field extension agents.
- iv) To restore or provide the facilities needed for the optimum operation of the extension service.
- v) To start extension operations in selected pilot villages as expansion points.

Plan of Work

Under this project, the major activities will be as follows:

Activities

Period

- | | |
|--|------------------|
| i) FAO provides one expert in Agricultural Extension and Training, 12 m/m | 1st - 12th month |
| ii) Reorganizing the extension set-up to include: <ul style="list-style-type: none">a) Designation of 3-4 national professionals to work in the project with the FAO expert;b) filling-in essential posts in the new reorganized extension structure;c) establishing a linkage with research institutions;d) preparation of orientation materials on the new extension structure | 1st - 6th month |
| iii) Drawing-up a Five-Year National Extension Action Programme <ul style="list-style-type: none">a) Action plans around major or priority problems of farming villages or farming areas. These will be in the form of project plans.b) Plan and programme of extension staff retraining and development. This will include fellowships for specialists/trainers and group training of extension agents at the American University in Beirut, Faculty of Agriculture, and its Agricultural Research and Education Centre in Bekaa and in other cases in the Agricultural Research Institute in Fanar. | 2nd - 7th month |

	<u>Period</u>
iv) Implementing the extension staff training (fellowships abroad and group training within Lebanon, including recent field experiences of the Save the Children Foundation in selected villages).	5th - 11th month
v) Identification of pilot villages, determining needs for extension and planning specific activities.	7th - 9th month
vi) Providing the facilities needed to carry out action in pilot villages.	5th - 11th month
vii) Actual extension operation in the selected pilot villages.	8th - 12th month
viii) Monitoring, evaluation and reporting.	7th - 12th month

It may perhaps be considered to carry out the above activities over a two-year period; this would probably be more realistic (but would require a higher budget than the one spelled out below).

<u>Budget Estimate</u>	<u>US\$</u>
A. External Assistance	
<u>Personnel</u> : 1 Extension and Training Expert 12 m/m	65,000
<u>Equipment</u> : a. 1 Land Rover vehicle	20,000
b. Various training and extension equipment	75,000
<u>Training</u> : a. Fellowships (4-6 participants)	24,000
b. Two training groups within Lebanon approximately 20x2 participants for approximately 2 months for each group	40,000
<u>Materials and Supplies</u>	10,000
<u>Miscellaneous</u> , including reports and publications	10,000
<u>Total</u>	<u>244,000</u> =====

B. Government Counterpart

- Personnel:
- a. 4 full-time professional counterparts
 - b. Salary of 4-6 fellows
 - c. Salary of 40 Extension agents while in training
 - d. 1 full-time secretary
 - e. 1 full-time driver

- Equipment and Facilities:
- a. Vehicles during preparatory phase
 - b. Office space at the Ministry of Agriculture
 - c. Office equipment - typewriter, photocopying machine, mimeograph, etc.

Local Transportation of Counterparts

Materials and supplies for programme and project plans and those needed during the extension action phase at the pilot villages.

Annex 3

PROJECT PROPOSAL: REHABILITATION OF AGRICULTURAL EDUCATION IN THE MINISTRY OF AGRICULTURE AND DEVELOPMENT OF THE FACULTY OF AGRICULTURE AND VETERINARY MEDECINE OF THE UNIVERSITY OF LEBANON

Implementing Agency: Ministry of Agriculture
Duration: One year
Estimated Starting Date: ...

Background and Justification

Although comparatively smaller than the non-agricultural sectors, agriculture needs a continuing supply of well-trained manpower, particularly at the technical and professional levels. Furthermore, as agriculture becomes modernized the demand for well-trained manpower becomes a critical factor. Demand for trained manpower in agriculture is created by both the public and private sectors. The precise demand or absorption capacity of these sectors is not clear at present.

Five years ago, Lebanon had two agricultural schools at the technical level. One was started in 1945 under the Ministry of Agriculture located in Fanar with about 20 graduates annually. It could not operate in 1975-76 and there were no graduates in 1978-79. The other is a private agricultural school in the south which was established in 1971-72. In 1973-74 it had 34 graduates but only 14 graduated in 1974-75. This school has been closed since 1975-76.

The Ministry of Agriculture had two operating vocational agricultural schools (7th to 10th year) from 1967 to 1974. A third was being established when the 1975 incidents took place. The current thinking is to rehabilitate these schools into vocational agricultural schools for the youth and training centres for adults in their respective service areas. A proposal to establish five more schools of this kind should be carefully studied in the light of the actual demand for them. Consideration should also be given to the plan to establish agricultural extension service centres which can function as centres for training farm people.

At the university level, Lebanon has depended on the Faculty of Agricultural Sciences of the American University of Beirut (a private institution) since 1952. At the B.S. level, 42 per cent of the graduates were Lebanese and at M.S. level only 19 per cent were Lebanese. The FAFS is well known for its high academic qualities, however, it attracts only the youth from very high-income families because the school fees alone are between \$5,500 to \$6,000 annually. In 1979 the Lebanese Government decided to establish a Faculty of Agriculture and Veterinary Medicine at its Lebanon University. General preparation is being made to open the Faculty in October 1980. From all appearances the plans are still very general and much technical work remains to be done to put this faculty in the right direction and on solid technical footing.

There appears to be an urgent need for technical assistance in the rehabilitation and further development of the agricultural schools under the Ministry of Agriculture and in the planning for the establishment and academic and research programmes of the Faculty of Agriculture and Veterinary Medicine of the Lebanese University.

Development Objectives

The ultimate objective of this project is to provide the public and private sectors of the Lebanese nation with well-trained manpower at the middle and higher levels needed for the development of agriculture and related industries and services.

Immediate Objectives

The immediate objectives of this project are as follows:

- i) To activate and develop the Fanar Agricultural School into a strong and unique intermediate agricultural school.
- ii) To provide technical assistance to the Faculty of Agriculture (and Veterinary Medicine?) of the Lebanese University.
- iii) To assist the Ministry of Agriculture to determine the definite direction in which the primary schools of agriculture will be oriented.

Plan of Work

Under this project most of the activities will be done by an agricultural education expert and a number of consultants in cooperation with national officers. This can be elaborated later.

Provisional Estimate for External Assistance

<u>Personnel</u>	US\$
1 agricultural education expert 12 m/m	65,000
1 consultant plant sciences education 4 m/m	20,000
1 consultant animal sciences education 4 m/m	20,000
1 consultant on campus planning	20,000
Miscellaneous	10,000
Total	135,000

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