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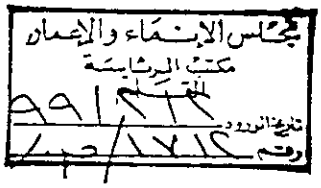

January 29, 1999

Mr. Mahmoud Osman
President
Council for Development and Reconstruction (CDR)
Beirut
Lebanon

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

Dear Mr. Osman

Subject: *Lebanon - Agriculture/Irrigation Public Expenditure Review*

Please find enclosed four copies of the draft Agriculture/Irrigation Public Expenditure Review (PER) prepared by the Bank. Please note that this report is still to be reviewed internally in the Bank and also with you before it could be finalized.

We hope that during our Director, Ms. Doris Koehn's visit to Lebanon from February 7 to 11, 1999, the contents of this report could be discussed.

Thanks and regards,

Sincerely yours,

Adel Bichara
Task Team Leader
Rural Development, Water and Environment Department
Middle East and North Africa Region

Attachments

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REPUBLIC OF LEBANON

PUBLIC EXPENDITURE REVIEW

AGRICULTURE/IRRIGATION SECTOR

January 27, 1999

Rural Development, Water and Environment Department
Middle East and North Africa Region

REPUBLIC OF LEBANON

PUBLIC EXPENDITURE REVIEW

AGRICULTURE/IRRIGATION SECTOR

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This report was prepared by a team consisting of Messrs. Jean-Francois Barres (Principal Agricultural Economist), Youssef Fuleihan (Senior Agricultural Economist - Consultant), Mohamed N. Ben Ali (Senior Agriculturist), and Ashok Subramanian (Senior Water Institutions Development Specialist). The team wishes to thank officials of MOA, MOHER, LRA, ARIL and the GP for their collaboration and assistance for providing the needed data and useful discussions.

REPUBLIC OF LEBANON
PUBLIC EXPENDITURE REVIEW
AGRICULTURE/IRRIGATION SECTOR

SUMMARY

Background

1. The analysis of the public expenditure program in agriculture and irrigation in Lebanon is severely constrained by the lack of reliable data in sufficient detail on public expenditures. In agriculture, this relates in particular to details on the high subsidies for wheat and sugarbeets, and annual variations in the recurrent expenditures of MOA, which could not be adequately explained. In irrigation, data are not available on cost recovery in the various schemes, the extent to which the proposed water authorities would improve cost recovery, and by bundling expenditures and revenues for irrigation and urban water and the sale of electricity. The availability of accurate and detailed data would make the analysis more reliable.

2. Historically public expenditures for both agriculture and irrigation have been very low. They represent less than 2 percent of the Government budget, reflecting the decreasing role of agriculture in the economy, which fell from the pre-war level of 20 to about 10 percent of GDP. Nevertheless, agriculture continues to be the base of the rural economy, and is an important source of income for about 25-30 percent of the population. Poverty in Lebanon is primarily a rural phenomenon; the 1997 index of relative poverty shows that poverty in rural areas was more than double that in urban areas. Because poverty is a disproportionately rural phenomenon, public expenditures in rural areas have the potential for reducing rural poverty; in addition, they could contribute to conserving natural resources, and to encouraging private investment.

3. In a strategic context, the Ministry of Agriculture (MOA) and the Ministry of Hydraulic and Electric Resources (MOHER) do not have formal strategies for the agriculture and irrigation sectors; MOA is formulating a strategy under the Agriculture Infrastructure Development Project (AIDP). However, analysis of the investment programs reveals implicit strategies for both sectors. For agriculture, the areas of emphasis are: (i) poverty reduction and improving the welfare of the rural population; (ii) protecting the environment and sustainability of natural resources, particularly the fragile land and water resources; (iii) encouraging private investment and employment in the rural economy through various incentives; and (iv) capacity building of implementing agencies to perform their policy, regulation, and implementation functions, which have a direct bearing on the effectiveness of public expenditures. For irrigation, the public expenditure program focuses on: (a) rehabilitation of existing irrigation schemes and improving on-farm efficiency; (b) development of Lebanon's water resources; (c) poverty reduction through implementing projects in the less developed areas in Baalbeck/Hermel, Akkar, the South, and small irrigation schemes in rural areas; (d) water sector reforms to empower the private sector to play an increasingly important role in water management; and (e) capacity building of MOHER, LRA, and affiliated agencies. The medium-term investment programs in agriculture and irrigation are consistent with the Bank's Country Assistance Strategy (CAS) for Lebanon of reducing poverty and social inequity, employment generation, and the sustainability of natural resources.

on traditional or low value crops in irrigated agriculture (due to a weak extension service, and lack of adequate knowledge of prices, and quality and health standards in the European Union (EU)); and

(d) weak institutional capacity of MOA in project evaluation, and financial management and control, and low civil service salaries which constrained MOA from performing its functions more effectively.

Irrigation

9. It is estimated that irrigation consumes about two-thirds of Lebanon's available water supply, while municipal and industrial uses account for the balance. MOHER and LRA are commended for making a strategic choice by devoting three quarters of the medium-term investment program for rehabilitation and/or modernization of existing schemes in order to reduce future stress on Lebanon's water resources (para. 24 in the main report). Notwithstanding the above, the following issues remain to be addressed:

(a) Planning of water resource use is severely constrained by the lack of a comprehensive Water Master Plan (WMP), and the lack of accurate data on current and future supply;

(b) In the long term, Lebanon could face a 40 percent water deficit by 2020 in the dry season (para.5 in the main report); the deficit could increase if the irrigated area expands beyond 150,000 ha, or water quality becomes too saline in some coastal areas, which already suffer from this phenomenon;

(c) The medium-term investment program for 1999-2002 is quite ambitious in terms of cost (LL282 billion, or around US$190 million), and the number of proposed projects (Annex II). In addition, it is not prioritized or fully funded; on an annual basis, planned investments in nominal terms of LL70.5 billion are more than twice the historic average of LL31.8 billion (LL36.5 billion on an inflation-adjusted basis). If implemented, the investment program would severely tax the financial resources of Government and the human resource capacity of implementing agencies.

(d) Cost recovery varies considerably among schemes and is inadequate. Water charges are not universally applied, and usually fall far short of O&M requirements. Irrigation schemes rely mainly on Government funding, even for O&M costs; however, details on actual expenditures and collection of fees from beneficiaries are not available at this stage.

(e) Institutional capacity of agencies in the water sector, and in irrigation in particular, needs strengthening in water resource planning, project evaluation, and financial management and control.

Main Findings and Conclusions

10. An analysis of the ongoing expenditure program is followed by analysis of the medium term investment program (1999-2002) in agriculture and irrigation.

17. The proposed Rural Development Project has an estimated cost of US$70 million, with possible Bank support (US$40-50 million). It aims to construct a small dam (about 8MCM capacity) at Janta/Hafoufa[1], provide potable water for villages in Akkar, Baalbeck, and Hermel, rehabilitate agricultural roads, reduce poverty and social inequity through financing of job-creating activities, and generally to promote development in rural areas, where poverty is high. Investment allocations for the 1999-02 period are tentatively estimated at LL7.5 billion each for MOA and ARIL (Annex I).

Irrigation

18. The irrigation investment program of MOHER and LRA for the four-year period 1999-2002 is ambitious, and totals around LL282 billion (US$188 million), as shown in Annex II. MOHER accounts for the bulk of the irrigation investment program, with a total cost of nearly LL200 billion, while LRA accounts for the rest. LL34.0 billion in MOHER's investment program is entirely allocated for the rehabilitation of ongoing small projects, for which studies and designs are ready, in various parts of Lebanon (Tabarja/Amsheet, Kesrouan, Hermel, Baalbeck, Zahle, and other locations).

19. Two-thirds of MOHER's investment program, or LL127.0 billion, is designated for new projects for which studies and designs need to be completed. The bulk of this allocation, or LL100.0 billion, is earmarked for the irrigation of agricultural land in Hermel and Ras Baalbeck from the Assi river in north Lebanon. Although a water sharing agreement has been signed with Syria, the other riparian, Turkey, is not party to this agreement. Hence implementation of this project could face delays beyond the period under consideration. The other main subcomponent in this category, or LL20 billion, is a project for the drainage of the Bu'qaya plain in Akkar. The balance of MOHER's investment program goes for small irrigation schemes.

20. Most of LRA's medium-term investment program of LL82.7 billion (US$55.1 million), or about LL69 billion (US$45.9 million), is entirely designated for the rehabilitation and/or modernization of various irrigation schemes in the Litani river basin, during the 1999-02 period. In addition, around LL14 billion (US$9.2 million) are allocated for Phase II of the South Bekaa Irrigation Project, financed under IRMP. Other irrigation developments are planned for the irrigation of South Lebanon, through a conveyor at elevation of 800m. Although full implementation of the project would not be possible before peace returns to the region, LRA has recently secured financing for updating the feasibility study of the project.

Recommendations

21. The following recommendations are based on analysis of public expenditures in agriculture and irrigation.

Agriculture

22. The main conclusions and/or recommendations for the agriculture sector are:

(a) The preparation of an agricultural strategy and the agricultural census are being addressed under the Agriculture Infrastructure Development Project (AIDP);

[1] The aim of the small dam is to improve the efficiency of an existing irrigation scheme, thereby enabling the irrigation of an additional 1,200 ha.

management. Furthermore, the feasibility of corporotization of LRA needs to be explored; and

(e) Strengthen the human resource capacity of agencies concerned with irrigation in water resource planning, project evaluation, and financial management and control.

REPUBLIC OF LEBANON
PUBLIC EXPENDITURE REVIEW
AGRICULTURE/IRRIGATION SECTOR

I. BACKGROUND AND SECTOR PUBLIC EXPENDITURES

Introduction

1. This report reviews public expenditures in the agriculture and irrigation sectors in Lebanon. Chapter I gives a background about, and recent developments in, agriculture and irrigation, and analyzes the 1994-98 investment program in these sectors. It also discusses specific issues that face the agriculture and irrigation sectors in a strategic context. A discussion of general issues that need to be addressed by the investment program in agriculture and irrigation is given in Chapter II. Chapter III analyzes the future investment program for the 1999-02 period in both agriculture and irrigation, and presents the main conclusions and recommendations.

2. The analysis of the public expenditure program in agriculture and irrigation in Lebanon is severely constrained by the lack of reliable data in sufficient detail on public expenditures. In agriculture, this relates in particular to details on the high producer subsidies for wheat and sugarbeets, and annual variations in the recurrent expenditures of MOA, which could not be adequately explained. In irrigation, data are not available on the extent, or lack of, of cost recovery in the various schemes, and the extent to which the proposed water authorities would improve cost recovery, and by bundling expenditures and revenues of irrigation and urban water, and the sale of electricity. The availability of accurate and detailed data on the agriculture and irrigation public expenditure programs would increase the reliability of the analysis.

A. The Agriculture/Irrigation sector

Current Status

3. Place in the Economy: Lebanon has an area of 10,450 km2 and its population was estimated at about 3.4 million in 1994. Administratively, Lebanon comprises six administrative Governorates (Muhafazats): Mount Lebanon, North Lebanon, South Lebanon, Nabatieh, the Bekaa Valley and Beirut. The six Muhafazats are sub-divided into 24 districts called Caza. Current agricultural GDP accounts for about 10 percent of total GDP and has remained significantly below its pre-war level of 20 percent. Nevertheless, the agriculture sector, including the irrigated subsector, continues to be an important source of income for about 25 percent of the population.

4. Arable and Irrigated Land: A village survey, conducted by MOA in 1997 indicates that the total arable area of Lebanon amounts to 297,000 ha or about one third of the country's total land area. The survey points out that this arable land area increased by about 16 percent since 1961, thanks to Government assistance programs for land reclamation implemented through GP (para. 34). About 40 percent of the arable land or 117,000 ha are irrigated. The Bekaa is by far the most endowed in terms of agricultural resources; 44 percent of agricultural land and 30 percent of irrigated lands are in the Bekaa plain.

5. Water Resources. As indicated in Table 1 below, in 1990 there was an annual surplus of water supplied over demand, but this was largely in the winter months. The overall summer demand

and pesticides. In the absence of effective public research/extension services to provide a second opinion to farmers, the use of high levels of inputs has made some agricultural products unfit for agro-processing or for export (tomatoes with high levels of nitrogen fertilizers in the Bekaa, and increased pesticide residues above safe levels for others, particularly vegetables and fruits).

8. Animal Production: Livestock numbers have increased significantly since 1980, this is particularly true for sheep whose numbers have increased by 222 percent to 322,000 heads in 1997. Also in 1997, cattle numbers have reached 57,000 head and goats 49,000 head. Lebanon imports significant amount of beef from abroad and until recently most of the milk sold in the country came from reconstituted powder milk. The increase in livestock numbers has in some areas contributed to the degradation of range and forest lands. A recent effort was launched by the Ministry of Agriculture to re-plant degraded forest areas and protect existing forests from encroachment of livestock and fire.

9. Organization of Public Provisions in Agriculture/Irrigation. Both MOA and MOHER provide budget-funded services to the sectors. MOA is organized into four central directorates (Studies and Coordination, Crop Production, Animal Production and Rural Development and Natural Resources) and accounts on average for more than half of public expenditure on the sector. With the exception of Beirut, MOA has a regional office in each Muhafazat and an extension office in each of the 24 Cazas (not all are operating). In addition, MOA has two organizations under the oversight of the Minister of agriculture; these are GP and ARIL. Public and private provisions in key agricultural subsectors are described in Table 2.

10. MOHER is organized in two central directorates (Planning and Operations), and several sections at headquarters. In addition to its general directorates, MOHER has through its Minister, oversight over LRA which is in charge of irrigation in the Litani River watershed and in South Lebanon. In the field, the operation and maintenance of irrigation schemes are devolved to regional public water/scheme management authorities or committees. The Government has approved the establishment of five regional water authorities, which will become Water and Wastewater Enterprises (WWEs), to replace the 19 regional authorities and 209 regional water committees; these would be responsible for the provision of water and wastewater services. The draft law was approved by the council of ministers in June, 1998, and has yet to be approved by parliament.

Table 2: Public Provision in Key Agriculture/Irrigation Subsectors

Subsector and Public Institution	Nature of Public Provision	Private Sector Participation
Ministry of Agriculture and Affiliated Agencies		
Statistics, Studies, Agriculture. Education: Public provision carried out by the Directorate of Studies and coordination	Main public expenditure (PE) items include: the conduct of a national agricultural census and the maintenance of a permanent statistical system on agricultural production, crop yields, import/export of agricultural produce; agriculture education at the secondary level and the provision of extension services	Some extension services are contracted out to private agencies such the American University of Beirut. Much of the recommendations on farm input use is still in hands of private input suppliers
Crop Production, import licensing, market information: Public provision carried out by the Department of Crop Production	PE are concentrated on promoting improved technologies; issuing import licenses and exploring market opportunities	Crop production farms are exclusively private; public sector intervention in cropping patterns is practically non existent; markets and private sector agro-industries

11. CDR, which has the main responsibility for the country's reconstruction program, also coordinates and in some cases supervises the implementation of donor-financed projects by the line ministries (MOHER or MOA). While CDR or the line ministry plans and executes large schemes, the regional Water Authorities/Water Committees in the various regions of Lebanon outside of LRA's areas of operation (Mount Lebanon, North Bekaa, Akkar), have responsibility for the operation and maintenance of these schemes, with technical and financial support provided by Government.

Strategic Context

12. MOA and MOHER do not have formal strategies for the agriculture and irrigation sectors; MOA is formulating a strategy as part of AIDP. However, analysis of the investment programs reveals implicit strategies for both sectors.

13. For agriculture, the areas of emphasis are: (a) poverty reduction in rural areas; (b) improving productivity of agriculture through applied research and extension; (c) export promotion of horticultural produce; (d) sustainability of natural resources; and (e) institutional capacity building.

14. For irrigation, the investment program focuses on: (a) rehabilitation of existing irrigation schemes and improving on-farm efficiency; (b) development of Lebanon's water resources; (c) poverty reduction by focussing on the less developed areas in Baalbeck/Hermel, Akkar, the South, and on small irrigation schemes in rural areas; and (d) water sector reforms to empower the private sector to play an increasingly important role in water management.

B. Main Issues and Constraints.

15. There are several issues that need to be addressed by the public expenditure programs in both agriculture and irrigation, as summarized below.

Agriculture

16. The specific issues/constraints that need to be addressed in agriculture are:

(a) lack of an agricultural strategy that clearly defines the role of the public sector, and provides the framework for a sectoral investment program; the lack of a reliable database aggravates the problem;

(b) policy framework that is not conducive to efficiency: (i) trade: the recent bans and restrictions on agricultural imports lead to inefficiency in the form of higher consumer prices, higher raw material prices for processing, lost customs revenue, retaliation by trading partners, and smuggling; (ii) high subsidies: by one estimate, the annual cereal and sugarbeet producer subsidies are LL96 billion or about US$64 million, in addition to US$25 million in tobacco subsidies (paras. 19-20);

(c) high costs of production due to high labor and input costs in relation to output prices, and difficulty of mechanization on account of the small size of holdings and mountainous terrain, and a focus on traditional or low value crops in irrigated agriculture (para. 6); and

since they exclude substantial producer subsidies for wheat, sugarbeets, and tobacco, which do not appear in the MOA budget.

19. Data was provided to the Bank on tobacco subsidies only, which are administered through the Regie des Tabacs. Around 14,000 farmers in South Lebanon and 6,200 farmers in Baalbeck/Hermel benefit from the program, which targets small farmers by setting a limit of 300 kgs on the amount of tobacco bought from each farmer. The Regie provides seeds and technical advice, bags, boxes, and pesticides to farmers. The total tobacco producer subsidy for Lebanon in 1997 was around US$25 million, of which US$19 million went to farmers in South Lebanon, and US$6 million to farmers in Baalbeck/Hermel (equivalent figures in Lebanese currency are LL37.5 billion, LL28.5 billion, and LL9 billion respectively).

20. According to one source[3], producer subsidies for wheat and sugarbeet were about LL 96 billion or US$64 million in 1996 (separate estimates for wheat and sugarbeets are not available), which exceed the combined expenditures of MOA and MOHER (for irrigation). (Some MOA officials, however, report that the wheat producer subsidy has become negligible since 1995; this highlights the need for additional data on subsjdies.) If these estimates are correct, they represent a serious misallocation of expenditures that needs to be addressed by the Lebanese authorities.

21. The Irrigation Services budget of MOHER and the LRA budget averaged around LL32 billion during the 1994-98 period, or 0.4 percent of the total Government budget, and was negligible in relation to GDP or 0.15 percent (Table 4). The analysis of the budgets of MOHER and LRA is constrained by the bundling of expenditures and revenues for both irrigation and urban water projects, as well as electricity generation and sale. However, MOHER and LRA provided figures that allow analysis of specific programs and projects in irrigation. It is also worth noting that LRA derives around LL1.4 billion annually from the sale of irrigation water to farmers, mainly in Qasmieh/Ras Al Ain.

22. Recurrent expenditures of MOA account for about 40 percent of total budget expenditures, half of which finance wages, salaries, and social security payments. Annual variations in MOA's recurrent budget could not be explained on the basis of data provided, and need to be analyzed in more detail once data is provided. For MOHER, these ratios are 28 and 80 percent respectively. Considering the low level of cost recovery by end-users, and the physical state of infrastructure, allocations for actual operations and maintenance of irrigation infrastructure are inadequate. The combined revenues of the Irrigation Service of MOHER and LRA generally exceed expenditures, mainly on account of the sale of electricity by LRA.

Current Investment Program in Agriculture.

23. The on-going investment program in agriculture is briefly described below, and details are given in Annex 1.

(a) The agriculture component of the Irrigation Rehabilitation and Modernization Project (IRMP) that is financed by IFAD (US$11.8 million), aims at increasing agricultural incomes, welfare and employment of small farmers, and strengthening essential agricultural services. The IFAD-financed component has two sub-components:

[3] Iskandar, M., The Lebanese Economy, 1997. These figures could not be independently verified.

schemes covering another 10,000 ha, which tend to focus on disadvantaged and poor areas; and

Table 3: Summary of Public Expenditures in Agriculture - 1994-98 , LL Billion[1]

	1994	1995	1996	1997	1998	Average 94-98	Future 99-02
MOA Expend[2]	31.66	50.18	45.30	64.32	56.78	50.18	
MOA Expenditures as % of Gvt. Expt.	0.006	0.008	0.005	0.007	0.006	0.0064	
MOA Expenditures as % of GDP	0.002	0.003	0.002	0.003	0.002	0.0023	
A. EXPENDITURES BREAKDOWN							
1. Wages, Salaries and Indemnities							
MOA	2.80	6.46	5.85	7.12	8.49	6.14	
ARIL	1.92	3.24	3.05	3.79	3.79	3.16	
GP	NA	1.72	2.15	2.26	2.45	2.15	
Others[3]	0.33					0.00	
Subtotal	5.05	11.42	11.05	13.17	14.73	11.45	
2. Other Recurrent							
MOA[4]	2.35	3.37	2.89	8.91	5.13	4.53	
ARIL	2.22	3.48	2.55	4.80	5.09	3.63	
GP	NA	0.43	0.85	0.80	1.32	0.85	
Subtotal	4.57	7.28	6.29	14.51	11.54	9.01	
Total Recurrent	9.62	18.69	17.34	27.67	26.27	20.45	
3. Investments							
MOA Local Budget Expend	9.87	5.36	2.05	3.65	1.56	4.50	31.97
MOA Expend. Through Intl.Finance.	0.00	11.88	15.27	16.64	15.84	11.93	
ARIL Budget	0.17	0.14	0.19	0.30	0.23	0.21	2.10
ARIL Proj. with Intl. Financ.	0.00	1.65	1.20	0.83	0.79	0.89	
GP Budget	12.00	12.46	9.25	8.18	5.04	9.39	35.70
GP Proj. with Intl. Financ.	--	--	--	7.05	7.05	7.05	
Total Investment	22.04	31.49	27.96	36.65	30.51	29.73	
TOTAL Expenditures	31.66	50.18	45.30	64.32	56.78	50.18	
B. SOURCE OF FINANCING							
1. Government Budget Contribution	31.56	36.35	28.53	39.10	32.40	33.59	
2. External Financing & Gvt. Contrib5.	0.00	13.53	16.47	24.52	23.68	15.64	
3. Self Generated Revenues (service charges, etc.)6	0.10	0.30	0.30	0.70	0.70	0.42	
TOTAL	31.66	50.18	45.30	64.32	56.78	49.65	
Actual through 1996 for government expenditures, 1995 for GDP, and estimates thereafter.							

1 Figures include MOA's contribution to the operating and investment expenditures of : (i) the Agricultural Research Institute of Lebanon (ARIL); (ii) the national Council for Scientific Research (NCSR); (iii) the Green Plan; and, (iv) the Hunting Council (HC). Investment expenditures financed through CDR are also included.

2 Actual expenditure or disbursement data was not available. Based on data provided by MOA, ARIL and GP management, budget expenditures were estimated to equal actual expenditures for wages and salaries; actual other recurrent and investment expenditures were estimated according to the following ratios: (i) for MOA, 71% of budget allocation for 1994, 85% for 1995; 90% for 1996; 85% for 1997 and 1998; (ii) for ARIL 65% of budget allocations; and (iii) for the GP, 100% of budget allocations, except for roads where expenditures were estimated at 80%. Project funds (extra budgetary local contributions and external financing) channeled through the CDR were added to the estimated investment expenditures from the Government budget.

3 The NCSR and HC

4 For the purchasing of, among other things, farm inputs and veterinary products given to farmers in the context of extension demonstrations

5 Gvt. Financing of about 20% of total and is generally extra budgetary and disbursed through the CDR

6 Essentially from charges made by ARIL against soil and water analysis services

Irrigation. Between 1994 and 1996, MOHER's Irrigation Service has implemented through private contractors 395 small contracts for a total value of LL 46 billion, or US$30.7 million. The geographical area served by the network is estimated to reach around 72,000 ha.

25. Until now, the World Bank has been by far the main source of foreign financing for the irrigation sector. Other donors include the French Government, which will finance three small irrigation schemes in the Bekaa Valley, under the UNDP-supported Baalbeck\Hermel IRDP. MOHER has published a draft of a Public Investment Plan (Loi Programme) for water, wastewater and irrigation for the period 1999-2009 and beyond, which will be touched upon in Chapter III.

II. MAJOR ISSUES RELEVANT TO PUBLIC EXPENDITURE CHOICES

26. Public expenditures in agriculture and irrigation have a direct impact on: (i) poverty reduction and the welfare of the rural population; (ii) the environment and sustainability of natural resources, particularly the fragile land and water resources; and (iii) private investment and employment in the rural economy through incentives (or disincentives). In addition, the capacity of public institutions to perform their policy, regulation, and implementation functions has a direct bearing on the effectiveness of public expenditures. This Chapter evaluates the current agriculture and irrigation public expenditure programs, in terms of the extent to which they address these issues.

A. Poverty and Social Inequity

27. Poverty in Lebanon is primarily a rural phenomenon. The 1997 index of relative poverty (Lebanon Average = 100) shows that poverty in rural areas is more than twice that in urban areas (182 against 82). The poorest areas are Hermel, Akkar, El Minyeh, followed by Sour, Bint Jbayl, and Marjayoun[4]. Because poverty is a disproportionately rural phenomenon, public expenditures on agriculture and irrigation in rural areas have the potential of poverty reduction for the rural population.

28. A substantial part of the agriculture investment program targets the rural poor. Targeted projects include: (i) the UNDP-supported IRDP in Hermel/Baalbeck (US$6.8 million), which aims to increase the income of small farmers, and to replace the production of illicit drugs; (ii) part of the US$ 104.8 million GP-implemented AIDP, which has a program of interventions in agriculture that targets small farmers; and (iii) the IFAD-supported Smallholders Livestock Project (US$ 22.2 million), which targets poor farmers and rural women. (For details, see para. 23).

29. Other targeted interventions include subsidies to the producers of tobacco (US$25 million), and reportedly US$64 million for wheat and sugarbeet producers in 1996[5]. The wheat and sugarbeet subsidies are funded by the general budget (through allocations to the Cereals and Sugarbeets Office in the Ministry of National Economy), while the tobacco subsidy is indirect and is administered by the Regie de Tabacs.

30. While the tobacco subsidy targets poor areas in the South and the Bekaa, and the wheat subsidy targets farmers in rainfed areas, the sugarbeet subsidy does not appear to have a poverty

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4 World Bank internal document, Lebanon – Indicators of Relative Poverty by Region, September 1998

5 Iskandar, M. *op. Cit.* This includes the purchase of 16,000 tons of wheat, and 30,000 tons of refined sugar. Details are not available on the breakdown of these subsidies except for sugar (US$250 per ton). These estimates could not be independently verified, and hence are only indicative.

37. MOHER has a robust irrigation investment program, based around two major projects, the World Bank and IFAD supported IRMP, which serves an area of 27,000 ha (Yammouneh, Dannieye, Akkar El Bared, Qasmieh/Ras El Ain and South Bekaa Irrigation schemes), and the Rehabilitation of Small Irrigation Schemes, which covers an area of about 72,000 ha (para. 24). These projects have a positive environmental impact. They rehabilitate irrigation networks that were damaged during the war (such as the pumping stations at the outlet of the Qaraoun dam and canals, or were neglected because they lie in areas with rampant hostilities), reduce conveyance losses, improve irrigation efficiency, and save water (the Qasmiah\RasAl Ain scheme would help save about 15 MCM annually). However, only a few schemes directly encourage water demand management through price incentives and the use of modern technology such as drip or sprinkler irrigation systems.

38. Since irrigated agriculture is the main consumer of water, on-farm irrigation management becomes an important instrument for curtailing consumption. Farmers share part of the costs of operation and maintenance in some schemes, as in the Qasmieh/Ras El Ain scheme, and in some small irrigation schemes (but specific details are not available). For the most part, however, irrigation water is provided at little or no cost in public irrigation schemes. For well irrigation, which is invariably private, farmers pay for the cost of pumping groundwater.

C. Private Sector Development

39. The provision of core infrastructure in the form of irrigation networks and agricultural services, such as adaptive research and technology transfer, promotes private investment in agriculture and agribusiness (processing, transportation, cold storage, grading and packing facilities, banking, etc). Extension centers promote better farm practices and productivity improvement. GP's programs of terracing, construction of hill lakes and agricultural roads, promote private investment.

40. Irrigation projects foster private investment in on-farm infrastructure, increase the demand for inputs and ancillary services, and enhance employment generation in labor intensive crops. It also promotes agricultural export-related activities in cold storage, packaging, and processing activities. The establishment of Water Authorities and water user groups encourage greater private sector participation in the management of irrigation schemes.

41. The policy environment (import restrictions and producer subsidies), however, encourages inefficient investment in agriculture at the expense of investment and growth in other sectors in the economy (see para. 16 b).

D. Institutional Capacity

42. Weak institutional capacity of the civil service is a generic problem in Lebanon. Institutional capacity has deteriorated, particularly during and after the war, leading to a negative impact on implementation of the investment program. Many qualified technicians migrated or left MOA, MOHER, LRA, and affiliated agencies for the private sector, where salaries are much higher. Many civil servants in these agencies and elsewhere hold multiple jobs to make ends meet in view of the rising cost of living. While this phenomenon is socially understandable, it reduces the already low efficiency of civil servants.

Conclusions and Recommendations

48. Based on the analysis of the future investment program in agriculture, the following are the main conclusions and recommendations:

- The investment program needs to be formulated within the framework of an agricultural strategy, with defined objectives, policies, a clear vision of the role of the public sector, and investment priorities. MOA does not have a clear strategy for the agriculture sector, partly due to the lack of reliable baseline data. The only document that outlines elements of a sector strategy is provided in the national research strategy. To address this issue, AIDP finances the ongoing agricultural census, and the preparation of a long-term strategy for the sector, in order to guide future investment in agriculture.

- On account of high production costs, and limited land and water, the future of agriculture in Lebanon needs to be export-oriented, and should promote the production of high value and non-traditional crops (use of tissue culture technology, production of flowers, seedless grapes, medicinal herbs, avocado, cherry tomatoes, etc.), in addition to the traditional fresh fruits and vegetables. Adaptive research and technology transfer should target exports markets. Government can provide export incentives in the form of market information through electronic links to European markets on prices, technical specifications and other regulations, give modest incentives for market and product development, and participate in foreign fairs, etc. In addition to continued exports to the traditional Gulf markets, Lebanon has a good potential to export high value crops to the EU, which already imports these commodities from Israel and the West Bank/Gaza, that have comparable or higher production costs. Furthermore, adaptive research and extension need also to target the rainfed areas (improved varieties of stone fruits, cereals, legumes, etc.) as a means to improve productivity and reduce poverty.

- The thrust of the medium-term investment program in agriculture is consistent with the objectives of reducing poverty and social inequity, and the sustainability of natural resources. It also contributes to sectoral productivity improvement and efficiency. The ultimate success or failure of these projects to achieve their development objectives depends on successful implementation.

- On the policy front, two issues need to be addressed for improving the efficiency of future private investments: trade restrictions, and subsidies. The recently adopted bans on the import of the major fruits and vegetables, seasonal imports of other fruits and vegetables, and higher tariffs (25 percent on canned peas and tomato paste, and to 20 percent on potatoes, etc.), encourage inefficiency (para. 16 b). It is recommended to review this policy, with the view of gradual liberalization of agricultural trade, while ensuring against anti-competitive practices by trading partners as allowed for by the World Trade Organization (WTO). This would encourage the production of higher value crops for export, and facilitate eventual accession to the WTO. As for subsidies, it is recommended to reduce and gradually phase out the subsidies on wheat (if not already phased out), sugar beets, and tobacco, and use the released funds for priority investments, to be established within the framework of the agricultural strategy under preparation by MOA.

Nabatiye area, could be implemented in the near future through a conveyor at elevation 600m, originating at Anane. The conveyor would also be used for urban water supply in the Nabatiye area.

53. During the civil war and before the 1982 Israeli invasion, Lebanon started the construction of a major new irrigation project, the South Bekaa Irrigation Project, as part of the implementation of the Litani River Basin Master Plan (Decree 14522), to irrigate 8,600 ha. In addition, 700 ha were equipped for pressurized irrigation, and two secondary pumping stations were built. Israel destroyed the pumping stations in 1982, shortly before the scheme became operational. Phase I of the South Bekaa Project is supported by the IRMP to rehabilitate 2,000ha in the Qaraoun, Joub Jannine area. A further extension of 6,600 ha, is planned in Phase II of the project. The feasibility study of the project is being updated under IRMP.

Main Conclusions

54. In the analysis of the medium-term irrigation investment program, a few facts stand out:

- **Water Master Plan**. Except for the Litani River Basin Master Plan prepared by LRA, Lebanon does not have a comprehensive Water Master Plan for the entire country yet, due to the lack of a comprehensive database. Estimation of water demand is feasible; however, data on current and future supply needs updating.

- **Water Availability**. Lebanon's investment program in irrigation is planned to expand considerably in the future. In the long term, Lebanon will gradually experience increasing water deficits, particularly in the dry months.

- **Emphasis on Rehabilitation**. Over 75 percent of the medium-term investment program is earmarked for the rehabilitation and/or modernization of existing schemes or networks, which suffered damage or neglect during and after the war[9]. This is a strategic choice made by Government, in order to improve irrigation efficiency and to reduce the future stress on Lebanon's water resources, reduce investment costs, and achieve quick benefits.

- Nearly two-thirds of MOHER's program is allocated for projects for which studies and designs have yet to be carried out, and it is quite likely that these projects will not proceed beyond the study/design stage by 2002.

- **Investment Program is not Prioritized**. The medium-term investment program is ambitious, and is not prioritized; it represents a list of activities for possible donor and local financing: around LL70 billion annually during 1999-2002, which is more than twice the historical average of LL32 billion (Table 4), or LL36,5 billion on an inflation-adjusted basis. When future inflation is taken into account, the fiscal burden would be higher. Furthermore, the investment program remains mainly unfunded. Even if funding were available, the investment program would tax the implementation capacity of MOHER and LRA to the limit, if not beyond.

[9] Excluding LL127 billion for projects for which studies and designs have not been carried out (LL100 billion for Al Assi Project), which are not likely to be implemented in the medium-term. If these projects are included, the ratio falls to 47 percent.

volumetric metering of wells and pumping quotas, imposing a moratorium on drilling in the most vulnerable basins, and in the extreme case possible water transfer between basins and sectors.

- **Prioritization of the Investment Program**. Due to constraints in the financial resource envelope, and limited implementation capacity, it is recommended to prioritize future investments according to economic, equity, poverty reduction, and natural resource sustainability criteria. In general, priority should be given raising O&M allocations to levels that are adequate to maintain the physical infrastructure, completion of ongoing projects, rehabilitation of existing projects, and implementation of Phase II of the South Bekaa Irrigation Project and the small projects program which mainly benefit poorer rural areas. These appear to be consistent with MOHER's and LRA's objectives.

- Corporatization of Water Authorities. Recent reforms in the water sector have yet to become effective. In view of the tight fiscal situation, it is proposed to accelerate the corporatization of the five regional water authorities. This would give beneficiaries a bigger role in operating irrigation schemes, and would provide the incentive for these authorities to operate on a commercial basis, prepare business plans, and match revenues with expenditures. Estimates of revenues from cost recovery following reforms are not available, but they are generally intended to cover O&M costs of Water Authorities. This is an effective means of irrigation and water demand management. Furthermore, the feasibility of corporatization of LRA needs to be explored.

- Institutional Capacity. It is recommended to strengthen the capacity of MOHER and LRA, in the areas of water resource planning, project evaluation, and financial planning and control. In addition, the technical capacity of Water Authorities needs to be assessed, and where necessary, strengthened.

MOHER AND LRA PR ECTS (INCL. EXTERNAL FINANCIING)

FUTURE (MID-TERM) INVESTMENT PROGRAM (1999-2001) LL BILLION

					MOHER				LRA				
Agency/Project	1995	1996	1997	1998	1999	2000	2001	2002	1999	2000	2001	2002	Total 99-02
MOHER													
A. Small Projects (French Protocol US$2.1 m., Japanese Protocol US$0.3 m., IFAD US$3.1 m)		2.75	2.75	2.75									0
B. Irrigation Rehabilitation & Modernization (Total project cost including Govt. contribution thro' CDR extra budget)	14.56	14.56	14.56	14.56	14.56	14.56							29.12
C. Studies/Designs of Irrig.Projects:													
1. Kaa, Hermel, Ras Baalbeck, Al Assi, Others					3.00	2.20							5.2
2. North Lebanon Govt.					1.00	0.30							1.3
3. Mount Lebanon					0.50								0.5
4. South Lebanon and Nabatick Govts.					0.50								0.5
5. Bekaa					1.00	0.50							1.5
Subtotal	0.00	0.00	0.00	0.00	6.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	9
D. Rehabilitation of various irrigation schemes for which studies and designs are ready (designs need to be completed - see MOHER's list attached)					11.33	11.33	11.33						33.99
E. Irrigation projects for which studies and designs need to be completed (see MOHER's list attached)					31.75	31.75	31.75	31.75					127
Sub-total MOHER	14.56	17.31	17.31	17.31	63.64	60.64	43.08	31.75	0.00	0.00	0.00	0.00	199.11
LRA													0
F. Irrigation Rehabilitation & Modernization Project (LRA South Bekaa)				4.59					4.59	4.59	4.59		13.77
G. Rehabilitation/completion of various irrigation schemes/work over a period of 3 years (see Litani project list)									22.97	22.97	22.97		68.91
Sub-Total LRA	0.00	0.00	0.00	4.59	0.00	0.00	0.00	0.00	27.56	27.56	27.56	0.00	82.68
TOTAL - MOHER + LRA	14.56	17.31	17.31	21.90	63.64	60.64	43.08	31.75	27.56	27.56	27.56	0.00	281.79

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الجمهورية اللبنانية

مكتب وزير الدولة لشؤون التنمية الإدارية

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.)

ANNEX II