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STAFF APPRAISAL REPORT

SYRIAN ARAB REPUBLIC

NATIONAL AGRICULTURAL EXTENSION PROJECT

August 23, 1985

Regional Projects Department
Europe, Middle East and North Africa
Agriculture 1 Division

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CURRENCY EQUIVALENTS (as of August 15, 1985)

Currency Unit	=	Syrian Pound (LS)
LS 1.00	=	US\$0.253
US\$1.00	=	LS 3.95

WEIGHTS AND MEASURES

<u>Metric Unit</u>		<u>US Equivalent</u>
1 millimeter (mm)	=	0.039 inches (in)
1 meter (m)	=	3.28 feet (ft)
1 kilometer (km)	=	0.62 miles
1 hectare (ha)	=	2.47 acres (ac)
1 liter (l)	=	0.264 gallons (gal)
1 kilogram (kg)	=	2.2 pounds (lbs)
1. metric ton (ton)	=	2,205 pounds (lbs)

PRINCIPAL ABBREVIATIONS AND ACRONYMS USED

ACSAD	=	Arab Center for the Studies of Arid Zones and Dry Lands
CAB	=	Cooperative Agricultural Bank
DAR	=	Directorate of Agricultural Research
FAO	=	Food and Agriculture Organization of the United Nations
GDP	=	Gross Domestic Product
GOCPT	=	General Organization for Cereal Processing and Trade
GOSM	=	General Organization for Seed Multiplication
GUP	=	General Union of Peasants
HYV	=	High Yielding Variety
IBRD	=	International Bank for Reconstruction and Development
ICARDA	=	International Center for Agricultural Research in Dry Areas
ICB	=	International Competitive Bidding
IFAD	=	International Fund for Agricultural Development
IS	=	International Shopping
LCB	=	Local Competitive Bidding
LIB	=	Limited International Bidding
MAAR	=	Ministry of Agriculture and Agrarian Reform
PM	=	Project Manager
SMS	=	Subject Matter Specialist
UNDP	=	United Nations Development Programme

GOVERNMENT OF SYRIA FISCAL YEAR

January 1 to December 31

SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION PROJECT

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This report is based on the findings of an appraisal mission that visited Syria in November, 1984. The mission consisted of Ms. Lituma and Mr. Fuad (Bank) and Mr. Masterton (Consultant). Mr. Nasr (Bank) also assisted the mission preparing the report.

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SYRIAN ARAB REPUBLIC

NATIONAL AGRICULTURAL EXTENSION PROJECT

Loan and Project Summary

Borrower: Syrian Arab Republic

Amount: US\$7.5 million equivalent

Terms: Fifteen years, including three years of grace, at the standard variable interest rate.

Project
Description:

The proposed project supports the Government's objective of increasing agricultural productivity through strengthening the organizational and management structure of the agricultural extension system and improving farm management practices. The project would include provision of equipment and vehicles as well as training and technical assistance to improve the planning, monitoring and evaluation capabilities of the extension system.

Benefits
and Risks:

The project would directly benefit some 380,000 farm families or about 80 percent of the country's farm community. It would also increase agricultural productivity and strengthen the organizational structure as well as improve the efficiency of the extension system. The availability of applicable and financially attractive technological packages, the Government's commitment to introduce a modern extension system and the progress achieved to date in expanding extension services minimize the risk that the proposed extension improvements may not be fully adopted or permanently institutionalized.

Estimated Project Costs:

	\$ Million		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
Reorganization of the Extension Structure	12.4	8.9	21.3
Field Demonstration	1.1	1.0	2.1
Mass Media	1.1	1.2	2.3
Technical Assistance	0.1	0.8	0.9
Training	1.8	0.1	1.9
<u>Total Base Cost</u>	<u>16.5</u>	<u>12.0</u>	<u>28.5</u>
Physical Contingencies	1.0	0.7	1.7
Price Contingencies	3.8	2.3	6.1
<u>Total Project Cost</u>	<u>21.3 a/</u>	<u>15.0</u>	<u>36.3 a/</u>

Financing Plan:

	\$ Million		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
Bank	-	7.5	7.5
IFAD	-	7.5	7.5
Government	21.3	-	21.3
<u>Total</u>	<u>21.3</u>	<u>15.0</u>	<u>36.3</u>

Estimated Disbursements:

IBRD Fiscal Year:	\$ Million				
	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Annual	0.25	0.45	2.20	2.70	1.90
Cumulative	0.25	0.70	2.90	5.60	7.50

Economic Rate of Return: Not applicable.

Staff Appraisal Report: No. 5495-SYR, dated August 23, 1985.

Map: No. 18771.

a/ Includes about \$2.5 million equivalent of taxes and duties.

SYRIAN ARAB REPUBLIC

NATIONAL AGRICULTURAL EXTENSION PROJECT

STAFF APPRAISAL REPORT

I. AGRICULTURAL BACKGROUND

A. Overview

1.01 Agriculture's Role in the Economy. The agricultural sector in the Syrian economy accounts for about 19% of the gross domestic product (GDP) and about 30% of the labor force. In addition, intersectoral linkages are strong; about one third of the gross output and one half of employment in the manufacturing sector are in food, beverages and textile activities. Agricultural output of Syria fluctuates widely in response to climatic conditions. During the first half of the 1970s the index of agricultural production rose rapidly, at 8.9% p.a., and continued to grow at 7.7% p.a. during 1976-80, boosted by a bumper crop in 1980. The average annual increase was much lower during 1980-83, 2.9%, resulting mainly from poor climatic conditions (Annex 1, Table 1). Output of vegetables and industrial crops (cotton and sugarbeet) suffered less than cereals as they are cultivated mostly in irrigated areas. Improved rainfall through the spring of 1985, could result in a bumper crop and repeat the 1980 experience. The drought years necessitated a substantial increase in agricultural imports, from LS 160 million in 1979 to LS 875 million in 1983 for cereals, and from LS 190 million to LS 225 million for sugar. Cotton exports which amounted to LS 682 million in 1983, are second only to petroleum as foreign exchange earners. While currently Syria is exporting only limited amounts of fruits and vegetables, the natural resource base and proximity to prosperous gulf markets suggest a potential for continued expansion of such exports if it establishes a reputation as a reliable, low-cost supplier of high quality products.

1.02 Land Resources and Land Use. The country has a land area of about 18.5 million ha, of which about 65% receives less than 200 mm of rainfall annually (Map IBRD 18771). Crop production is generally confined to the higher rainfall areas, and to areas developed with irrigation. Of the arable land of about 6.2 million ha, 4.0 million ha is cropped (with 0.6 million ha irrigated), 1.8 million ha is annually rotated fallow and 0.4 million ha is uncultivated. Forests, steppe and pastures cover about 8.8 million ha, and non-arable land, about 3.5 million ha. The most important crops grown under rainfed conditions are barley, wheat, fruits and legumes. Irrigated crops include wheat, cotton, vegetables, fruits, oilseeds and sugarbeets. There is

extensive sheep grazing on the steppe and pasture lands, supplemented in some cases by crop residues and government supplied feed. In recent years, agricultural technology has improved markedly with about a 300% increase in fertilizer use since 1973. High yielding varieties (HYV) of wheat have been widely adopted in irrigated areas and, to a lesser extent, in high rainfall areas (over 350mm p.a.); also, improved cotton varieties are widely accepted in irrigated areas. Nevertheless, because adoption of improved techniques has lagged behind recommended levels, yields remain well below demonstrated potential.

1.03 Currently there are about 480,000 farm families (including about 40,000 engaged in livestock activities) with an average of about 6.2 members per family. Most farm units are privately owned, except for a few state farms. About 80% of the farm holdings are located in irrigated and high rainfall areas. Average farm size ranges from about 3.0 ha in high rainfall or irrigated areas to about 45 ha in low rainfall areas. In the 1970s, farm family incomes were less than half of those of urban families, causing large migration to urban areas and to neighboring countries and resulting in seasonal labor shortages. In recent years, however, urban/rural income differentials have decreased and migration has slowed.

1.04 Water Resources. Water shortage is a major constraint in Syrian agriculture as total precipitation is low, variable and unevenly spread. Improved cultural practices based on moisture conservation and more efficient use of fallow land would reduce the impact of inter annual fluctuations and spur sectoral growth. These improved cultural practices would be demonstrated on farmers' fields and disseminated under the proposed project. Irrigation development has been a principal means of offsetting the risks arising from climatic factors. Apart from areas benefitting from small river streams, the principal river basins in Syria are those of the Euphrates, with an annual run-off of about 27,000 million m³, the Khabour, with 2,000 million m³ and the Orontes with 1,500 million m³. The Tigris with the second largest run-off in Syria is not developed for irrigation at present. Irrigated areas in Syria cover about 558,000 ha at present and the Government has identified potential in 1,210,000 ha. Groundwater potential has not been fully investigated but these resources appear to be limited and hence serve mainly as a source of supplementary irrigation to about 260,000 ha. The extent to which surface irrigation potential (Table 1.1) is reached over the long run will depend, among other factors, on the resolution of riparian issues with neighboring countries.

Table 1.1: SURFACE WATER DEVELOPMENT AND POTENTIAL

(ha)

	<u>Total Identified Irrigation Potential</u>	<u>Currently Irrigated</u>	<u>%</u>
-----ha-----			
Euphrates Basin	525,000	121,000	23
Khabour Basin	186,000	101,000	54
Tigris Basin	120,000	-	-
Other Surface Schemes	<u>120,000</u>	<u>77,000</u>	<u>64</u>
	<u>951,000</u>	<u>299,000</u>	<u>31</u>

Recognizing this potential, and the importance of water as a constraint to agricultural development, the Government is implementing an ambitious program to reclaim and irrigate an additional 652,000 ha. This program suffered initial implementation delays due to construction problems and cost increases. However, works are currently making progress and a portion of the benefitted area will be brought into production starting in 1985. In addition, because significant production increases can be achieved through improvements in cropping intensities and yields in irrigated areas and implementation capacity to expand irrigated areas is limited to about 20,000 ha per year, the Government's current investment plans give priority to completing ongoing irrigation projects, and rehabilitating existing infrastructure, while strengthening agricultural extension and research.

1.05 Livestock. Livestock activities in Syria account for about 20-40% of agricultural production depending on climatic conditions, with nearly half of the land area suitable only for livestock production. Traditionally, this activity has been based on seasonal utilization of the steppe, with movements of flocks to and from post-harvest crop land. The steady increase in herds since 1971 is causing deterioration of range lands and has modified substantially the traditional balance of forage utilization and the accompanying flock movement. Currently, grazing resources provide only about 33% of total feed supply compared to 65% a decade ago. Measures to stabilize the herd number, improve veterinary services and enhance utilization of crop residues are needed to ensure a more efficient and sustainable level of livestock production.

1.06 Farm Credit. The principal institutional source of agricultural credit is the Cooperative Agricultural Bank (CAB), established in 1970 as a wholly Government owned organization. To facilitate the expansion of its operations, the Government increased CAB's capital from LS 150 million in 1979, to LS 250 million in 1983 and is expected to raise it further to LS 1,000 million during 1985. CAB has 62 branches and mainly finances the needs of cooperatives and individual farmers who are licensed by the Ministry of Agriculture and Agrarian Reform (MAAR). Each cooperative prepares an annual plan incorporating all loans required by its members. About three-quarters of CAB lending consists of short-term loans, less than 10% are

long-term loans, and the remainder, are medium-term loans. Although interest rates charged to borrowers were increased in 1981, they are still low, ranging from 2% to 4% p.a. for the public sector, 2% to 6% for cooperatives, and 3% to 7.5% for private individuals (about two percentage points below those charged to the industrial sector). Interest rates on deposits range from 4% for sight accounts up to 8% for term deposits of not less than 12 months, and a flat 2% p.a. for public sector deposits. CAB's narrow lending margin and negative interest rates in real terms ^{1/} have eroded CAB's financial position and made it excessively dependent on Government capital contributions. The need for periodic interest rate adjustments and reduction of the gap between preferential and other rates are expected to be reviewed with Government during macroeconomic policy discussions scheduled for later this year.

1.07 Input Supply. From three fertilizer plants, the General Organization of Chemical Industry produces the country's requirements of nitrogenous and phosphatic fertilizers; but potassic fertilizer is imported. Although fertilizer prices have not been increased during the last three years, official prices are currently higher than those observed in the international markets, even if converted into US\$ at the parallel exchange rate. Between 1973 and 1982, the use of chemical fertilizer increased from 103,000 tons to 385,000 tons. However, as this growth has occurred in the absence of an effective extension service, fertilizer application is often poorly timed, and sometimes wasteful. The General Organization for Seed Multiplication (GOSM) has been producing, through contact growers, certified seed of wheat, cotton, barley, maize, chickpeas, broad beans and potatoes. Farmers using improved seeds have tended to purchase new seed annually, mainly because of lack of seed cleaning equipment and because, until recently, no premium was paid on certified seed. CAB is responsible for storage and distribution of fertilizer, seeds and pesticides, and its income through earnings on such operations, permits it to cover adequately its operational costs. As of 1984, CAB had a network of 140 stores and warehouses in its 62 nationwide branches. Storage and distribution of fertilizer, seeds and pesticides is satisfactory, with input supply increasing rapidly during recent years, and no delays being reported by farmers.

1.08 Marketing and Distribution. Agricultural produce is purchased both by Government and private merchants. Fruits and vegetables are bought from farmers, predominantly by private merchants, although a small portion is also marketed by the Government's General Company for Food. There is active competition among merchants, and generally, prices received by producers reflect market demand and supply conditions. However, to increase exports of such products substantially, produce grades and standards would need to be improved and export licensing system for private tenders relaxed. Through public sector processing enterprises, the Government is the sole purchaser of cotton, tobacco and sugarbeet. The General Organization for Cereal Processing and Trade (GOCPT) purchases less than one-third of the output of wheat, maize,

^{1/} Annual inflation rate was 6.2% in 1983. It rose to 10% during the 12 months ending in August 1984 and is estimated to reach 15% per annum in 1985.

barley, lentils and groundnuts at official procurement prices (para. 1.12) announced before planting seasons. GOCPT also handles the export/import trade of these commodities. This organization operates through a network of branches and multipurpose cooperatives, which act as government agents.

1.09 Farm Management. Management practices at farm-level need substantial improvement; yields and cropping intensities are substantially below their potential. Improvements in productivity are dependent on timely seeding, fertilizer and pesticide application, better water management practices in irrigated areas, and improved moisture conservation techniques and practices. Experiments and field trials are being conducted by Government research institutes on crop management, fertilizer use, pest and weed control, and use of fallow land. Though the resulting recommendations are now being practiced by a few progressive farmers, cultural practices followed by the majority are unsatisfactory. While most land preparation is done mechanically resulting in deep-plowed, clean seedbeds, farmers carry out weed control only on a limited scale due to its high labor cost and their insufficient knowledge of selective use of herbicides. Also, although the fertilizer use has increased markedly over the last ten years, it is still below recommended levels. Farmers cultivating under rainfed conditions are reluctant to apply recommended dosages, although benefits from fertilizer application can outweigh the possible losses from low rainfall and the risk could be minimized by staggering fertilizer application. Further, the application of phosphorus at seeding time would help strengthen and deepen the root system, enabling more effective water utilization. Traditionally, Syrian rainfed farmers leave a portion of land fallow to conserve moisture. Research results have indicated, however, that very little, if any, moisture is actually being thus conserved, due mainly to high evaporation rate during summer months and that substitution with a legume crop is preferable. While some farmers have reduced, or in some cases eliminated fallow, yet about 1.8 million ha remain underutilized every year. The agricultural extension service which should demonstrate and disseminate improved technology needs substantial strengthening as envisaged under this project (paras. 2.05-2.10).

B. Sectoral Objectives and Policy Issues

1.10 The Government's development strategy in agriculture as envisaged in the Fifth Five-Year Plan (1981-85), focuses on: (a) achieving an average 7.8% p.a. agricultural growth; (b) achieving self-sufficiency in agricultural commodities and raw materials in which Syria has comparative advantage; (c) increasing export earnings from agricultural products; and (d) enhancing productivity, rural income and living standards. The Fourth and Fifth Plan documents also highlighted the need for more intensive cultivation, the use of price policy to provide production incentives, and an expanded use of fertilizers, pesticides and improved seeds.

1.11 During the Fourth Five-Year Plan (1976-80), 7% of the investment budget was allocated to the agricultural sector, but because investments were concentrated on long gestation projects, their impact on growth was small. Therefore, the 7.7% average annual growth of agricultural output during the Fourth Plan period resulted mostly from adoption of improved technologies and from favorable weather conditions. Under the ongoing Fifth Plan, 19% of the investment budget has been allocated to agriculture; of this about 13% is specifically assigned to investments in the Euphrates basin mainly to complete ongoing subprojects and to rehabilitate existing irrigation areas. The Plan

also places great emphasis on investments and productivity improvements in rainfed cultivation, farm mechanization, and agricultural research and extension. This project is directly supportive of these objectives.

1.12 The Government's sector policy is guided by Law Number 14 of November 9, 1975. The purpose of this law is to determine land use and cropping patterns "consistent with the best agricultural techniques available" to meet specified annual production targets. Annual agricultural plans based on research findings are prepared by MAAR within the framework of five year plans. The MAAR through its Directorate of Agricultural Affairs has the responsibility to license farmers to carry out yearly plans, and is empowered to apply penalties for non-compliance and offer incentives for encouraging conformity to plans. As MAAR does not have sufficient data or manpower to prepare detailed production plans or to monitor individual farmers' activities, deviations from licensed cropping patterns are not uncommon. To encourage Syrian farmers to move progressively into the production of high value specialized crops and crops in high domestic and export demand, there appears to be a need for greater flexibility in the planning system and to increase the role of relative prices in determining producers' decisions related to cropping patterns and input use. In that respect, the monitoring and evaluation system to be introduced under the project will provide information on financial and economic viability of different production techniques on different microclimatic soils and conditions. Such information is expected to be used not only for the extension activities but also to assist the Government in improving decision-making on agricultural production plans increasingly on a bottom-up basis with even greater involvement of farmers and cooperatives. Based on sector work scheduled in FY86, these issues will feature in subsequent policy dialogue with the Syrian authorities.

1.13 Prices for most agricultural commodities are controlled by the Government. The Government establishes official procurement prices on the basis of average production costs and uses them as instruments to provide adequate income to farmers and to encourage them to expand output of strategic crops in accordance with the annual plan (para. 1.12). During the last seven years, official procurement prices have more than doubled (Annex 1, Table 3). Thus, domestic procurement prices for the major internationally traded crops are now high relative to international prices (converted at the official exchange rate of LS 3.95/US\$ from 1978 to 1980 and at the parallel market rate of LS 5.45/US\$ from 1981 to 1984) particularly for maize and sugar beets (Annex 1, Table 4). Given the Government's commitment to maintaining low prices on basic foodstuffs, these high producer prices have resulted in large food subsidies for some products such as bread and sugar. However, in the light of increasing fiscal pressures, the Government proposes to review its present policies. As agreed during the negotiations for the Southern Regional Agricultural Development Project (Loan 2124-SYR), the Government has furnished to the Bank a study on agricultural prices, marketing and interest rates, which describes the current policies. This study will be used as the basis for further analysis in the proposed sector work and followed up policy discussions with the Government scheduled for FY86 (para. 1.12), specifically with respect to resource allocation, pricing, and subsidies.

C. Bank Group Lending for Agriculture

1.14 The Bank's lending strategy in the agricultural sector has been to finance projects which help the Government attain its objectives of increased production and reduce the dependence on fluctuating rainfall. In the 1970s, the Bank approved four agricultural projects—two in the irrigation subsector (Balikh Irrigation Loan 975/Credit 469-SYR and Lower Euphrates Drainage Project, Loan 1682-SYR, totaling US\$103.0 million), and one each in the livestock and agroindustry subsectors (Livestock Development Project Loans 1311/1312T-SYR for US\$17.5 million, and Cotton Seed Oil Processing Project Loan 1631-SYR for US\$21 million). The last mentioned project was cancelled due to long delays in recruitment of consultants. The Bank's lending program in the irrigation subsector is assisting the Government in expanding the irrigated area (Balikh Irrigation Drainage Project) and improving and intensifying production on existing irrigated land (Lower Euphrates Drainage Project). The start-up of the Balikh Project was substantially delayed mainly due to problems of construction and sharp increases in construction costs. As a consequence, the project scope had to be limited to half of the originally planned area. Start-up of the Lower Euphrates Drainage Project was delayed due to procurement problems but implementation capability within the Ministry of Irrigation has subsequently improved. Construction works on the two projects are making better progress and the total benefited area will be brought into production during 1985 and 1986. The Livestock Development Project which has been completed and fully disbursed has had a positive impact on the income of the livestock subsector. Based on lessons learned as noted in the Livestock Project Completion Report dated June 24, 1985, possibilities of better utilization of agricultural by-products, change in barley marketing policy, improvements in market conditions and ways and means to stabilize the herd are now being discussed with the Government as the basis for a future project in this subsector. In 1982, the Bank approved the fifth loan for the sector (US\$22 million), for the Southern Regional Agricultural Development Project (Ln. 2124-SYR) aimed at improving and rehabilitating 30,000 ha of rainfed area. Though the Project experienced substantial initial delays due to procurement problems, field works have already started and the project is now proceeding well. As a result of a procurement seminar held in the country and drawing up of standardized tender documents, procurement related delays are likely to be minimized in future.

II. AGRICULTURAL RESEARCH, EXTENSION AND TRAINING

A. Agricultural Research

2.01 Agricultural research in Syria is planned, organized and carried out by two national directorates (Agricultural Research and Soils) within MAAR. In addition, the two international organizations, the Arab Center for the Studies of Arid Zones and Dryland (ACSAD) and the International Center for Agricultural Research in Dry Areas (ICARDA), both with headquarters in Syria carry out significant research activities in support of the national programs.

2.02 The Directorate of Agricultural Research (DAR), established in 1953, carries out adaptive research in all aspects of agricultural development including livestock. The DAR is headquartered in Douma, near Damascus and has 22 substations located in different climatic zones. Its main research program, in major field crops, vegetables, seed legumes and fruit tree crops emphasizes varietal improvements, control of diseases and pests and cultural practices. The Directorate of Soil is in charge of soil laboratories and conducts trials on soil fertility, soil management and soil reclamations. It also carries out experiments and trials on crop rotation, irrigation crop requirements and in minimizing frost effect on fruit trees. Each of these two directorates has an independent national research committee which meets once a year to review results of the previous year and decide upon research programs for the forthcoming year. As these committees function under the direction of the Minister of Agriculture, a degree of coordination in research planning and programs is ensured. However, some duplication of research effort, and deficiencies in coordinating field activities remain. ACSAD, created in 1971 with headquarters in Douma near Damascus, is an autonomous body affiliated with the Arab League. Its research program in the arid and semiarid areas of Syria emphasizes water management, soils, cereals, fruit trees and animal husbandry. ICARDA, established in 1976 with headquarters in Aleppo, which belongs to the CGIAR system carries out research programs dealing with: integrated farming systems, and improvement of cereals, food legumes and forage crops improvement. Both international organizations cooperate with the national research directorates mainly through their verification and training programs.

2.03 Research efforts in the country have been successful in developing recommendations used by the Government in formulating its agricultural plans (para. 1.12). Also, certain financially and economically attractive packages have been developed, particularly for the irrigated and high rainfall areas. These packages include: high yielding varieties of wheat, seed legumes and cotton; more efficient fertilizer rates and timing of application; disease and pest control in major crops; improved farming practices, including seed bed preparation and time and method of seeding; and more efficient use of fallow land (Annex 1, Appendix 1). Uptake of new technological packages, however, has been limited to some progressive farmers mainly due to the absence of an efficient extension service. Although a sufficient number of technological packages are now available for dissemination to farmers, the continuous availability of improved technology (on which effective extension would

depend in the medium- and long-term) will require additional research effort and improvement in research efficiency. Specifically, more emphasis is needed in the areas of mechanization (particularly, planting and harvesting techniques), water management, and weed control, as well as on rainfed crops (particularly barley) under low rainfall conditions. These activities are currently being emphasized in close collaboration with ICARDA and ACSAD, but would need to be further strengthened in the medium term. Recognizing the need for efficient use of scarce research resources, the Government has recently proposed to merge the two national research organizations into a single semiautonomous organization which would have responsibility for coordinating all research effort in the country.

2.04 Linkages with Extension. Contacts between research and extension staff take place at all levels but only on an ad hoc basis. Research findings are currently transmitted to the extension service through publications, annual reports and training efforts but not readily translated into recommendations suitable for farmers' use. To have an effective two-way flow of information, research/extension contacts need to be formalized and expanded to include active participation by extension staff in research verification trials and by research staff in field demonstrations. The structure and organization proposed under the project would ensure progress on these lines.

B. Agricultural Extension

2.05 The Directorate of Agricultural Extension. Agricultural extension has existed in Syria, though on a limited scale, since the early 1950s. It was only in 1978 that Government established a Directorate of Extension in the MAAR and a Department of Extension in each of the 14 governorates' (Mohafaza) Directorates of Agriculture for making improved technological packages in all aspects of agricultural activities available to farmers. The Director of Extension reports directly to a Deputy Minister, who is also in charge of animal production and health, rangelands, forests and training. Two other deputy ministers are responsible for agricultural research, soils, plant protection, mechanization, planning and statistics, finance and specialized commodity bureaus (Chart, World Bank 27068).

2.06 To enhance the effectiveness of the extension service, the Fifth Five-Year Plan provides for the establishment of a national network of 600 service units to bring agricultural services to all farm families in the country. The construction program has proceeded on schedule and about 430 units were completed by the end of 1984, with the remaining 170 to be completed in 1985. Of the total, 450 (360 completed and 90 being constructed) are located in irrigated and high rainfall areas. As distribution of units already constructed is uneven, with some units servicing 20%-25% of the recommended service area and others serving more than 150%, the Directorate of Extension is reviewing the boundaries of existing centers and is revising locations under the 1985 construction program.

2.07 The extension service is presently organized at three levels, viz.; national, Mohafaza, and extension units. At the national level, the organization consists of four sections reporting directly to the Director of

Extension: (a) Field (b) Information; (c) Women Development; and (d) Administration. The organization at the Mohafaza level is similar. At the extension unit level, the extension staff, are village level extension agents in direct contact with farmers. All Mohafaza extension staff are responsible to the Director of Extension for technical matters, but administratively controlled by the Director of Agriculture, who reports directly to the Minister. This organizational structure, while emphasizing village level contact, suffers from absence of regular and reliable supervision and the lack of systematic technical support to extension agents. Currently they receive only some ad hoc guidance from agriculturists employed by other directorates or departments.

2.08 At the end of 1984, of a total of 1,221 extension staff in post, (900 in the area of the proposed project) 27 were located in the Directorate of Extension in Damascus, 67 in the 14 Mohafaza departments, and 1,127 extension agents at the village level (Annex 2, Table 1). The rapid expansion of the extension efforts without adequate organization structure planning has resulted in this large number of staff at the village level lacking the necessary supervisory and technical support at the Directorate and Mohafaza levels. Moreover, the planning, monitoring and evaluation capabilities of the managerial staff, need to be strengthened. In this context, an extension advisor to the Director of Extension is expected to be recruited by end 1985 for a two-year period under the ongoing UNDP project No. SYR/83/002/C/01/12. Although about 80% of the extension agents are university graduates, their current capability for efficiently transferring improved technology to farmers is limited. Realizing that the university curricula do not include extension methodology or practical aspects of farming (para. 2.11), MAAR has initiated staff training to rectify these weaknesses but these training efforts are limited in scale and quality.

2.09 Extension Program and Methodology. To date, headquarters and Mohafaza staff have been occupied more with planning the location and construction of the extension units, than with program planning and quality of extension. At the field level, the extension methodology currently being practiced comprises mainly field demonstrations and field days, with limited use of mass media. In areas where extension staff have been trained they have also been carrying out farm surveys and analyzing development potential, priorities, and needs. Based on these analyses and on broad guidelines developed by the Directorate of Extension and its Mohafaza counterparts, agents have been proposing annual work programs with monthly work schedules for review and approval by the higher authorities. Agents are seldom supervised and receive little technical support beyond annual training and pamphlets. In addition, work schedules are not met because of vehicle and equipment limitations. Farm visits are infrequent and, therefore, field demonstrations are underutilized. The mass media program is mainly confined to technical publications, that are not adapted to direct farmer use. Despite these weaknesses, in 1984, the performance of the extension service, at least quantitatively, has substantially improved with about 3,000 field demonstrations and 3,600 field days to its credit.

2.10 Other Organizations providing Agricultural Extension. In addition to the Directorate of Extension, some relatively small-scale extension efforts

are provided by the Directorates of Animal Production, Agricultural Affairs, and Plant Protection; the General Organization for Seed Multiplication (GOSM); specialized bureaus; the General Union of Peasants (GUP); and the Ministry of Irrigation. Extension responsibilities of the Ministry of Irrigation are confined to areas newly developed for irrigation, and those of GOSM to contacting seed growers. The GUP with over 3,000 multipurpose cooperatives are mostly concerned with credit, input distribution, and marketing of certain crops. Their technical staff, whose task is largely to train farmers on cooperative related matters, incidentally and in the absence of an effective extension service, offer some farm advice. Also, in the absence of an effective extension service, modest uncoordinated services have been developed by other organizations in an attempt to fill the gap. Therefore, as the Directorate of Extension develops a full range of extension services, these other organizations would gradually withdraw from field level extension, confining their contribution to subject matter support and training as needed.

C. Agricultural Education and Training

2.11 Agricultural Education. Two Ministries are primarily responsible for agricultural education in Syria. The Ministry of Higher Education operates four universities each with a faculty of Agriculture, while the Ministry of Education operates three intermediate agricultural institutes. In addition, MAAR operates five secondary agricultural schools, one veterinary institute, two veterinary technical schools, and two machinery secondary schools. The annual output of all these institutions is over 2,000 graduates which appears to be in excess of the current needs of the agricultural sector. As part of the preparation of the Sixth Five Year Plan (1986-1990) the Government is proposing to review ways and means to better balance requirements and output of agricultural graduates. The main constraint in agricultural education is, therefore, qualitative rather than quantitative. In particular, the agricultural curricula are weak in extension methodology and practical farming techniques.

2.12 Agricultural Training. In an effort to correct these weaknesses, MAAR is engaged in several short-term agricultural training programs. Primary responsibility for agricultural training in MAAR rests with the Directorate of Training. Assisted by research and other directorates and specialized bureaus, it is currently providing technical short-term training for about 2,000 MAAR staff annually. These technical courses are well organized and generally run on schedule. However, curricula are not properly geared to extension, nor are they related to the relevant technical packages recommended for each Mohafaza. MAAR is establishing three specialized training centers in mechanization and one in dairy production. The Mechanization Center in Aleppo is in full operation with an annual capacity of about 100 trainees. Those in Homs and Deraa are being established, with the latter currently in operation, under the Southern Regional Agricultural Development Project (Ln. 2124-SYR). The Dairy Center in Homs is being developed with financial assistance from the Government of the Netherlands.

2.13 In addition, the Directorate of Extension, with the assistance of UNDP and FAO (UNDP Project No. SYR/83/002/C/01/12), has provided, since 1981,

training in extension methodology and communication skills. This eight-week training at the Chamia Training Center near Damascus focuses on communication techniques for farmer training, technology transfer, farm surveys and field demonstrations. Through 1984, a total of 470 staff have been trained, of whom 360 are currently working for the extension service. Currently, MAAR is expanding the Center by constructing additional facilities, which, beginning 1986, would increase the annual training capacity from 180 to 270.

2.14 ACSAD and ICARDA provide training courses mainly for research staff which are open to Syrian nationals. ACSAD has been providing training in irrigation agronomy, and ICARDA in cereals, legumes and farming systems. At appraisal, both organizations expressed willingness to assist the Government in training extension staff, particularly Subject Matter Specialists (SMSs), under the proposed project.

III. THE PROJECT

A. Project Background, Rationale, Objectives and Scope

3.01 Background. Following the Government's request to IFAD for financing a nationwide agricultural extension service, project preparation was started by FAO Investment Center in April 1982. Subsequently, IFAD, FAO and the Bank discussed with Government the need for some adjustments on project scope and possible Bank co-financing. In March 1983, a second FAO preparation mission visited Syria and issued a report in September, 1983 which served as basis for the Bank's preappraisal in November 1983, and appraisal in November 1984.

3.02 Project Rationale. Major objectives of Government policy are to achieve self-sufficiency in foodstuffs in which Syria has a comparative advantage and to increase its agricultural export earnings. To this end, the Government has, during the past ten years, made major investments to expand irrigated areas, improve input supply, and develop rainfed areas through rock clearing and terracing. In addition, the MAAR research institutes, with the assistance from ICARDA and ACSAD, have developed technological packages for increased productivity in irrigated and high rainfall areas. However, yields and cropping intensities are still low compared to their potential, and management practices at the farm level need substantial improvement. Increases in production can be achieved through increased efficiency in crop and animal husbandry, reduction of fallow, pest and disease control, improvement in water use, and use of improved crop varieties. The Government recognizes that, to realize the full potential of its agricultural resources, and to fully benefit from its past investments in the sector, it is imperative that the extension service should be restructured, strengthened and better coordinated with research organizations. Therefore, having initiated in 1981 a nationwide program of developing 600 agricultural extension units, the Government is seeking, through the proposed project, to strengthen qualitatively and quantitatively the mechanism for making improved technological packages available to farmers.

3.03 The ongoing extension program has progressed on schedule but its effectiveness is still constrained by:

- (a) shortage of trained staff, and organizational weaknesses in terms of accountability, supervision and subject matter support;
- (b) absence of an efficient and regular two-way flow of information between the field and organizations responsible for research and extension planning;
- (c) deficiencies in information material for mass media use; and
- d) shortage of vehicles, basic equipment and materials, and implements needed for demonstrating new production techniques.

These principal weaknesses in the existing extension system will be addressed by the proposed project.

3.04 Project Objectives and Scope. The main objective of the project is to assist the Government in strengthening the extension organization and thus promote increases in agricultural productivity and farmers' income by improving the efficiency of farming. To that end, the strategy of the proposed project will include the redefinition of extension activities, taking into account, inter alia, microregional resource availability, potential and constraints, and the strengthening of linkages with research. The extension service will be restructured, responsibilities clearly defined, and technical support provided. In addition, the project will aim at improvements in the extension programming capability and in monitoring and evaluating extension activities.

3.05 The scope of the project will cover the following:

- (a) strengthening the capabilities of the extension service by providing clear line of responsibility and accountability within the system, adequate specialist back-up support, simple extension equipment, transport facilities, staff training and a limited number of additional staff;
- (b) strengthening field demonstration activities by identifying region-specific needs, intensifying the program and providing demonstration equipment and materials;
- (c) strengthening audiovisual and mass media programs by providing additional equipment, staff, vehicles, and technical assistance to improve the production of mass media materials and to train local staff; and
- (d) improving extension program planning, and monitoring and evaluation capabilities by providing staff training and technical assistance. The latter will include employment of specialists to assist in extension service planning, extension methodology, training and introduction of monitoring and evaluation systems including system analysis and data processing.

3.06 The project will finance the first phase of a national agricultural extension program, limiting its coverage to irrigated and higher rainfall areas (over 350 mm p.a.). These are the areas with the highest agricultural potential in Syria, for which tested and proven technical packages are already available. This will correspond to 450 extension units, and 39 support centers, to provide supervisory and subject matter support to extension agents. The Department of Extension, at each of the 14 Mohafaza, and the Directorate of Extension at Damascus, will also be supported. Given their current potential for yield increase and economic importance in terms of import substitution or export expansion, the project will focus primarily on wheat, cotton, vegetables and olives, and to a lesser extent on seed legumes, other fruit tree crops and improved livestock practices, (Appendix 1).

B. Detailed Features

3.07 The project will support two complementary and mutually reinforcing approaches to agricultural extension and information transfer. The first is based essentially on personal contact between extension agents and farmers and on field demonstrations, programmed to better respond to specific local farmers' needs. Each agricultural agent posted at an extension unit will be assigned responsibility over a given area, usually encompassing several surrounding villages with similar agroecological characteristics and farming systems. The agents will undertake an intensive schedule of programmed farm visits, and will be supervised by extension supervisors and trained by SMSs. Strong links will be established between extension and research, so that extension staff is adequately supplied with appropriate technology, and research supported with feedback from the field.

3.08 This face-to-face extension method will be supplemented by information transfer based on the use of mass communication and audiovisual aids. Little systematic use of these facilities has been made, up to now, in Syria. Under the proposed project, the Information Section within the Directorate of Extension will be strengthened. The preparation of audiovisual materials will be closely coordinated with the research institutes. Audiovisual aids and mass media will be used throughout the project area as a complement to direct contact between extension agents and farmers, and these two approaches will be integrated to achieve maximum efficiency.

Reorganization of Extension Structure (US\$21.4 M)

3.09 The project will introduce a fourth level into the structure of the extension service--support centers comprising extension supervisory staff and SMSs. It will also strengthen the existing structure through the provision of equipment, vehicles and additional staff.

3.10 Extension Units. It was agreed that a total of 450 extension units will be supported under the project and that each unit will be staffed with 1-3 extension agents at the rate of one agent to about 250 farm families in irrigated areas and one to 500 in rainfed areas with due consideration for the complexity of the farming system in the area, cropped area, travel distance and communication. To that end, adjustments are being made to current

boundaries of existing centers as needed (para. 2.06). A total of about 1,100 extension agents will be required, of whom 826 agricultural engineering graduates have already been appointed; the remaining 274 will also be agricultural engineering graduates with rural background expected to be employed by the third and fourth years of the proposed project (Annex 2, Table 1). To ensure that the needs of the women farmers are properly addressed, a number of women extension workers will be appointed specially on those areas where women are a significant portion of the farm population. Current output of agricultural graduates is adequate to fill up these posts.

3.11 Under the project the territory of each extension unit will be divided geographically among the agents who will be responsible for assisting farmers on key production aspects. During the first year, and assisted by the supervisor and SMSs at support centers, each agent will carry out a survey of the local resources, potential and constraints. Based on this survey, and in close consultation with the research establishment, the supervisor will prepare the annual work program which will establish priorities for technological packages and field demonstrations. Attention will be focused on practices likely to bring the best results, such as seedbed preparation, use of improved seed, seed treatment, pest control, weeding, efficient fertilizer use and timeliness of operations, and, in livestock, on better and selective feeding, disease control and early weaning. The agents, assisted by SMSs and in close consultation with village leaders, will select contact farmers and visit them on a regular schedule known in advance to other farmers. To ensure that the needs of the poorer farmers are properly addressed, a suitable number of such farmers will be selected as contact farmers. The suitability of the identified contact farmer as a channel for disseminating information will be carefully monitored, and replacement made when needed. Each contact farmer, who will have a field demonstration, will gather around him a group of 6-8 neighboring farmers, increasing it to about 25 by the fifth year. On each regular visit, the extension agent will visit the contact farmer's fields and discuss and demonstrate innovations aimed at increasing productivity, check progress in adopting previous recommendations, and discuss with farmer groups any technical problem they face. Under the project, two approaches will be followed; one will be the designation of fixed contact farmers over the years and the other, a systematic rotation of contact farmers amongst members of the farming community after one or two cropping seasons. The opinions and suggestions of the village leaders, representatives of the Peasant Union and extension agents will be sought before deciding on the approach to be used in each extension agent's territory. In parallel with field demonstrations and regular group visits, the agent will make individual farm visits, hold field days, conduct farmers' meetings, and distribute extension publications. Farmers' meetings will be organized, in particular, during the time of the year when there is little agricultural activity, with the help of farmers' cooperatives and the Peasant Union. Agricultural agents will be administratively attached to the support centers. Work schedules of extension agents will be developed by the Directorate of Extension and their counterparts at the Mohafaza level. Work schedule used for planning purposes is shown in Annex 2, Appendix 1.

3.12 Support Centers. A total of 39 support centers will be established under the project at selected locations, each central to about 8-15 extension units. Space has been made available at 34 extension units, at four Mohafaza offices, and at one Mantika agricultural office (Mumbej of Aleppo Mohafaza). Each support center will have 1-2 extension supervisors (one per 15 to 20 extension agents) and 1-3 SMSs dealing with the most important agricultural activities e.g. field crops, irrigated crops, vegetables, fruit trees, or

animal production. The 39 centers will require 60 supervisors and 62 SMSs. (Annex 2, Table 1). These officers will be selected from among the most experienced staff already working at the various agricultural sections at the Mantika and Nahia agricultural offices and transferred to the extension service. No difficulty is anticipated in finding suitable staff for these positions, though there will be need for providing them additional training. Assurances were obtained from the Government that SMSs and supervisors to be posted at such centers will be transferred to the extension service no later than June 30, 1986.

3.13 Under the project, extension supervisors will assist the extension agents in developing their overall annual work programs--which will be segments of the Mohafaza annual work program. They will monitor its implementation through at least fortnightly visits. Each month, SMSs will also visit extension agents to assist them with field demonstrations, solve farmers' technical problems, and provide in-service training.

3.14 Extension Departments at the Mohafaza Level. Under the project, staff in the 14 Extension Departments at the Mohafaza level will be increased by a total of 52 SMSs, and 66 administrative staff, including an assistant to the chief in each extension department (Annex 2, Table 1). The SMSs will be selected from the more experienced staff already working at the various agricultural offices at the Mantika and Nahia levels and transferred to the extension service. Assurances were obtained from the Government that staff to be posted as SMSs at Mohafaza level will be transferred to the extension department no later than June 30, 1986.

3.15 Under the project, the head of the extension department, with the assistance of his staff and inputs of extension agents and support center staff, will translate guidelines and broad technical recommendations received from the Directorate of Extension into a Mohafaza work program with technological packages based on local research, field surveys and experience. The Field Section of the department will supervise and monitor its implementation with visits to support centers and extension units. The Information Section will continue to provide extension publications and assist with the use of audiovisual aids and mass media. The assistant to the chief of each Extension Department will be primarily responsible for: (a) identifying training requirements at the Mohafaza level; (b) coordinating the courses and training schedules with the training department; and (c) coordinating all extension activities with research and other organizations.

3.16 Directorate of Extension at the National Level. The Directorate of Extension will be strengthened by establishing a deputy director position and a separate division in charge of training. Assurances were obtained from the Government that the Training Division and the position of the Deputy Director of Extension will be established and staffed no later than June 30, 1986. The training Division will be staffed with one chief (training coordinator) and three training officers of whom two are presently handling training but assigned to the Field Extension Section. Also, to strengthen the other sections, 15 additional staff positions will be established as follows: five for the Field Section; two for the Information Section; and eight for the Administration Section (Annex 2, Table 7). In addition, the project will provide for two visits of an internationally recruited extension advisor (paras. 3.33, 3.34).

3.17 The Director of Extension will be responsible for the overall planning, implementation, monitoring and evaluation of the extension program. The Information Section will continue to prepare technical publications and the mass media program, and the Administration Section will keep records and accounts of the proposed project and provide clerical assistance to the Directorate. The Deputy Director will be primarily responsible for liaison with other organizations to ensure a two-way flow of information with other agencies concerned with agricultural development such as research organizations, specialized agricultural bureaus and CAB. The Training Section will be responsible for planning and organizing all project related training and preparing guidelines for the required areas of specialization (para. 3.26).

3.18 The Field Section staff will remain responsible for the implementation and monitoring of the field program through regular visits. Their function will also include the collation and analysis of field data collected by the extension service as a basis for preparing relevant technical publications, developing the overall extension policy and programs, and formulating the technical recommendations and packages for each Mohafaza.

3.19 Linkages with Research Critical to the success of the extension service, and to the impact of research results, will be the close inter-relationship of the extension service with the research organization. This will be developed through an intensive schedule of programmed interactions of extension and research staff on research farms and farmers' holdings where verification trials and field demonstrations will be conducted. Extension agents will thus become more acquainted with research developments, and research staff with the field applications of research findings, as well as with farmers' problems. In addition, research workers will participate in the training of the extension staff, in particular the SMSs, and assist the extension service in the preparation of pamphlets and booklets for mass media communications. To ensure these strong linkages, MAAR will institute joint extension and research working groups with farmers' participation at headquarters and at each Mohafaza, to review the progress and impact of extension, and the adequacy of technological packages, and identify farmers' problems requiring to be tackled by research.

3.20 Equipment and vehicles. To support the extension system, the project will provide for equipment and vehicles at all levels. The latter will comprise station wagons, minibuses, pickups and motorcycles. In addition, 14 vehicles will be assigned to the Mohafaza Departments of Training and 16 to the two national research directorates. Details of the vehicles and equipment are in Annex 2, Table 2.

3.21 Incremental Operating Costs. The organizational structure for extension (paras. 3.09 to 3.19) will require a total of about 1,438 staff of whom 906 suitably qualified staff is currently available in the project area (Annex 2, Table 1). Assurance was obtained from Government that it would endeavor to keep trained personnel assigned to the Project during the Project life. The project will provide for incremental salaries and travelling allowances to permit an expanded program of field visits and for incremental costs to operate and maintain the vehicles and equipment. This component will, however, be fully financed by the Government from its own resources.

Field Demonstrations (US\$2.1 million)

3.22 Field demonstrations will remain an important extension activity. Demonstrations will initially concentrate on the main crops such as wheat, seed legumes, cotton, olives and vegetables and will expand gradually to include other crops such as citrus, maize, apples, grapes and sugar beet and livestock. Also, as equipment becomes available, field demonstrations on farm mechanization will be emphasized.

3.23 The existing field demonstration techniques will be improved by selecting region-specific topics, ensuring that fields are accessible and representative of the area, and ensuring the presence of contact farmers. The annual total of demonstrations will gradually increase from the current level of about 3,000 (or about one per 125 farmers) to about 12,000 (or about one demonstration per 40 farmers) at full development. Land, labor and machinery will be provided by the farmer (land owner) and the materials (seeds, fertilizer and chemicals) by the extension service to be financed under the project. Special implements, not widely used at present by farmers, will be provided under the project for demonstration purposes. These will include seed drills, fertilizer sprayers, tractor-mounted sprayers, seed cleaners, cultivators, land levelers, potato lifters and beet planters. Such equipment will be assigned to the support centers, and distributed according to cropping patterns and demonstration needs. A detailed list of demonstration equipment is in Annex 2, Table 2.

Audio Visual Aids and Mass Media (US\$2.3 million)

3.24 The project will assist the Information Section of the Directorate of Extension in introducing audiovisual materials and mass communication methods as a means of dissemination of technological packages. This section will be responsible for (i) assembling a library of existing information from Syria and abroad of interest to extension staff and abstracting and disseminating it; (ii) preparing and producing audiovisual aids (technical bulletins, slides, movies, video films, etc.) for use by extension agents and by SMSs; and (iii) coordinating the use of mass media for general information to farmers, particularly of radio and television broadcasts. To support these functions, the project will provide for six staff/months (s/m) of consultancy in audiovisual media (paras. 3.33 and 3.34). Materials for audiovisual programs will be carefully selected, produced and edited in coordination with research institutes to emphasize the most economical extension recommendations and to ensure suitability for farmer assimilation.

3.25 The project will also provide for a complete professional video recording system including video camera, video cassette recorder and copier. Also, it will provide video tapes, video T.V. sets, 35 mm cameras, slide projectors, loud speakers and materials at the Mohafaza, support center and extension unit levels. A detailed list of equipment is presented in Annex 2, Table 2.

Training (US\$1.9 million)

3.26 The project will provide various types of prerequisite training and in-service training. The training courses for the extension staff will cover (a) extension methodology and communication skills; (b) project orientation and project related technology; (c) specialized subjects; (d) extension

supervision management and planning; (e) mass media production; and (f) in-service training. The Chief of the Training Division at the Directorate of Extension and the assistants to the chiefs of the Extension Department at the Mohafaza level will, in collaboration with the Directorate of Agricultural Training, finalize training guidelines, curricula and schedule of the training program. ^{1/} In this task, he will be assisted by the training advisor currently employed under the UNDP project No. SYR/83/002/C/01/12 (para. 2.13). Assurances were obtained from the Government that (i) a detailed training plan, including the curricula for all project related training, will be finalized and sent to the Bank for review no later than April 30, 1986, and (ii) it will arrange for any necessary supplementary employment compensation to participants involved in that training program.

3.27 Extension Methodology and Communication Skills. Since 1981, the Directorate of Extension, in collaboration with the Directorate of Agricultural Training and assisted by UNDP and FAO, has been providing training in extension methodology and communication skills as a prerequisite for all extension technical staff at the Chamia Training Center. The course is of eight weeks duration and focuses on communication techniques, farmer surveys, technology transfer, and the use of audiovisual aids. Through 1984, 360 extension staff have been trained and another 100 are expected to be trained during the first half of 1985. The remaining 900 extension staff, required for project activities, will be trained during the project period, phased as indicated in Annex 2, Table 3. Through 1986, the cost of the training, including the advisor, will be financed by the ongoing UNDP project (para. 2.13), and from 1987 through mid-1989 under the proposed project. Beginning 1986, the training capacity of the Chamia Training Center will be expanded from an annual output of 180 to 270. To that end, additional facilities will be completed and a Director to the Chamia Training Center appointed by the end of 1985.

3.28 Project Orientation and Project Related Technology. Training in project orientation and project related technology will be given to extension agents by the Mohafaza Department of Training with the assistance of senior extension staff and staff from research organizations and specialized bureaus. It will consist of a series of one to two week courses to be conducted at appropriate times during the staff's first-year assignment. The department of extension in each Mohafaza, through its deputy chief, will program and coordinate these courses with the Department of Training. Project orientation courses will focus on the objectives and concepts of the proposed extension system. Also a short course in vehicle and motorcycle operations and maintenance will be offered to all staff.

^{1/} Draft terms of reference for specialized subjects are available in the Project File.

3.29 Specialized Subjects. About 160 staff will be trained in technical subjects related to the technological packages specialized as follows: field crops (35); tree crops (25); vegetables (25); irrigated agriculture (35); mechanization (20); and animal husbandry (20). The courses will be of about five months duration, and given at the national level by the Agricultural Research Institute, the Aleppo Mechanization Institute and ACSAD and ICARDA. These institutes will be assisted by other specialized directorates and/or bureaus. Particulars of the phasing of the training and the lead institutions are in Annex 2 Table 5.

3.30 Extension Supervision, Management and Planning. Training in extension planning, management and supervision will be given to extension supervisors and other key staff at the support centers, Mohafaza and national levels. These programs will consist of workshops and seminars with focus on program planning, data processing, monitoring and evaluation. They will be given by the Director of Extension, assisted by key senior extension staff; the extension advisor provided under the ongoing UNDP project (para. 2.08); and the short-term consultants on monitoring and evaluation proposed under the project (para. 3.34). Also, a three- to four-month English language course will be offered to about 15 managerial staff. Fellowships (20 staff-months) for short term foreign training and study tours will also be provided, for enabling key managerial staff to visit successful extension programs in other countries including Turkey, India and Pakistan.

3.31 Mass Media Production. Training in mass media production will be given to key staff in the Information Section of the Directorate of Extension. This will include production and editing of video and audio tapes on extension activities for radio and T.V. broadcasting. Training will be provided by the mass media communication specialist to be hired under the project (para. 3.34).

3.32 In-service Training. After the initial orientation period, extension agents will receive regular fortnightly in-service training on topical subjects related to the following month's work program. This will be given by the extension supervisors and SMSs at the support center level. Additional assistance will be enlisted as needed from other sources such as research institutions, the CAB, the specific crop bureaus and GUP. Also, regular (seasonal) workshops will be organized in coordination with the research institutions for keeping SMSs abreast of agricultural research developments.

Technical Assistance (US\$0.9 million)

3.33 The project will provide for 64 staff/months (s/m) of technical assistance to the Directorate of Extension as follows: one extension training advisor, 30 s/m (para. 3.27), one extension planning advisor, 6 s/m (para. 3.16) and 28 s/m of short-term consultancy in extension monitoring, evaluation and system analysis, 22 s/m, and short-term consultancy in mass media communication skills, 6 s/m (para. 3.24). Assurances were obtained from the Government that internationally recruited experts will be appointed in accordance with World Bank guidelines under terms and conditions satisfactory to the Bank. In addition, and in support of the proposed project, from July 1985 through December 1986, a total of 36 s/m of technical assistance will be provided under the ongoing UNDP project as follows: one training advisor, 18 s/m (para. 2.13), and one extension planning advisor, 18 s/m (para. 2.08).

3.34 The extension training advisor to be financed under the project will be hired no later than January 1, 1987 to follow the UNDP financed expert (para. 3.33) and will continue to assist the Training Section of the Directorate of Extension in planning, organizing, developing curricula and supervising ongoing extension training activities. Similarly, the extension planning advisor to be hired no later than September 1, 1988, for two short visits will continue to assist the Director of Extension in the overall planning, organization and supervision of the extension service. The 22 s/m of short-term consultant services for extension monitoring and evaluation to be hired not later than July 1, 1986, will represent a team of one agricultural economist (10 s/m), one extension specialist (3 s/m) and one agronomist (8 s/m). The team will assist the Directorate of Extension in establishing a system to monitor and evaluate the implementation and impact of the extension system and the technology that will be introduced under the proposed project (para. 3.35). The mass media production consultant to be hired not later than July 1, 1986, will assist the Information Section of the Directorate of Extension in the production and editing of video materials and other audio visual aids. Terms of reference of the required specialists are in Annex 3.

C. Monitoring, Evaluation and Reporting

3.35 The Directorate of Extension, through its Field Section, will be responsible for monitoring overall project implementation based on data submitted by each Mohafaza Department of Extension. Two types of monitoring are envisaged under the project: (a) monitoring, in physical and financial terms, of "project inputs" such as staff recruitments, procurement, training, farmers visits, demonstration activities, etc., against the work programs to be developed each year (project management information system); and (b) monitoring of the "project outputs", that is, impact of the extension system in terms of adoption of specific recommendations by farmers (project benefit monitoring). For "project inputs" monitoring, each Mohafaza will submit quarterly and annual reports to the Directorate of Extension. The Field Section within the Directorate of Extension will collate and summarize the information of the different Mohafaza into quarterly and annual progress reports for consideration by the Director of Extension. Such reports will indicate both financial and physical progress towards quarterly and annual plan targets as specified in the annual work programs (paras. 3.11, 3.13 and 3.15, and 4.07). For "project outputs" monitoring, each Mohafaza Department of Extension will report at least annually on a set of indicators which will measure progress towards specific objectives. The Field Section of the Directorate of Extension will collate and summarize the information of the different Mohafaza and will prepare annual progress reports in which it will highlight achievements, problems and recommended actions for consideration by the Directorate of Extension. These annual reports will be submitted to the Bank for review and comments by March 31, each year. In addition, and to complement the information on project output monitoring, the Field Section assisted by the Monitoring and Evaluation Unit recently established under the Southern Regional Agricultural Development Project (Loan 2124-SYR) will undertake simple adoption rate surveys for assessing the effects of the project on the farming community. At the Mohafaza level, the local Field Section of the Department of Extension will be responsible for monitoring and evaluating the project. Assisted by staff in the Planning and Statistics Department, they will undertake yield surveys on a restricted number of crops in order to assess the impact of the technological packages disseminated under the project. Yield surveys will also be supplemented by specific case studies

designed to investigate problems experienced during project implementation. The Field Section at the national level will maintain data obtained over time from adoption rate and yield surveys, and special studies as the basis for evaluating the benefits derived by farmers from the technological packages. The reporting system at national level will be fully computerized.

3.36 At the commencement of the project, the monitoring and evaluation system will be established including preparation of appropriate forms, collection of baseline data and organized data flow. Baseline data will include stratification of farmers by farming system, and detailed summary of resources, potential and constraints, and will be utilized by the extension service in devising packages so as to maximize the impact of extension messages (para. 3.11). A midterm in-depth analysis of the impact of the extension activities including the effectiveness of extension/research linkages and adequacy of the research programs will be carried out at the end of the third year of the project and an ex-post evaluation after completion of the project. The above activities will be carried out by the Directorate of Extension assisted by internationally recruited consultants (para. 3.34). Assurances were obtained from the Government that it will carry out a midterm in-depth analysis of the project by June 30, 1988, and that it will be submitted to the Bank for review not later than December 31, 1988.

D. Environmental Impact

3.37 The proposed project will lead to increased use of agrochemicals, e.g., insecticides, herbicides and pesticides. This, however, is not expected to have a negative environmental impact as currently, MAAR, through its Plant Protection Directorate, has been carrying out investigations to identify, to the extent possible, pesticides which are both effective and safe without resorting to the use of highly toxic chemicals. In addition, the extension service will, through its contacts with farmers, stress the hazardous nature of these chemicals and advise on their transportation, and use and disposal of empty containers.

IV. PROJECT COSTS, FINANCING AND PROCUREMENT

A. Project Costs

4.01 Total project costs (net of taxes and duties) are estimated at SL 133.5 million (US\$33.8 million), with a foreign exchange component of about 44%. Taxes and duties are estimated at US\$2.5 million equivalent. The base cost represents the estimated cost of investment and initial operation, including incremental staff salaries during the four-year (Oct. 1985–Sept. 1989) project implementation period in March 1985 constant prices; cost of imported vehicles and equipment reflect current international prices, and those of internationally recruited experts reflect the cost of recent contracts for similar assignments in the country. Physical contingencies amounting to six percent of total base costs are included, and price contingencies, between May 1985 and the end of the project implementation period, are estimated at 21% of base costs. Price contingencies have been applied to both local and foreign costs at the following annual rates: 5% for 1985, 7.5% for 1986, and 8% for 1987–1989. These rates, which are below the expected rates of cost increases in the national economy, reflect the expected continued government control of public sector related local costs, in particular salary levels. Table 4.1 below presents a summary of cost estimates detailed in Annex 2, Tables 5, 6 and 7.

Table 4.1: SUMMARY OF COST ESTIMATES

	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	<u>%</u>
	<u>SL million</u>	<u>million</u>	<u>SL million</u>	<u>US\$ million</u>	<u>million</u>	<u>US\$ million</u>	<u>Base Cost</u>
Reorganization of Extension	48.9	35.0	83.9	12.4	8.9	21.3	75
Field Demonstration	4.4	4.0	8.4	1.1	1.0	2.1	7
Mass Media	4.5	5.0	9.5	1.1	1.2	2.3	8
Technical Assistance	0.5	3.2	3.8	0.1	0.8	0.9	-
Training	6.8	0.3	7.1	1.8	0.1	1.9	10
Base Cost	65.1	47.6	112.7	16.5	12.0	28.5	100
Physical Contingencies	3.9	2.7	6.6	1.0	0.7	1.7	6
Price Contingencies	15.3	8.9	24.2	3.8	2.3	6.1	21
Total Project	84.3	59.2	143.5	21.3	15.0	36.3	127

B. Project Financing

4.02 The proposed Bank loan of US\$7.5 million equivalent will finance approximately 22% of project costs net of taxes and duties, equivalent to 50%

of foreign exchange costs. IFAD is expected to extend a loan of SDR 7.55 million (US\$7.5 million), to be administered by the Bank, to finance the remainder of the foreign exchange cost. The Government will contribute US\$21.3 million equivalent (including taxes and duties). In the event that IFAD makes the loan commitment but does not have the funds available at the time of Bank loan effectiveness, the Bank will initially disburse the amount corresponding to IFAD's share. The proposed financing plan is summarized in Table 4.2 below:

**Table 4.2: PROJECT FINANCING
(US\$ million)**

	<u>Total Cost</u>	<u>Government of Syria</u>	<u>IFAD</u>	<u>Bank</u>	<u>Bank Contribution %</u>
Equipment, Vehicles & Materials	17.0	3.8	6.60	6.60	39
Tech. Assistance	1.1	-	0.55	0.55	50
Training	2.4	1.7	0.35	0.35	15
Incremental Operating Costs	<u>15.8</u>	<u>15.8</u>	<u>—</u>	<u>—</u>	<u>0</u>
Total	36.3	21.3	7.50	7.50	21

As a condition of effectiveness of the proposed Bank Loan, the Government will be required to submit to the Bank, satisfactory evidence that the execution and delivery on behalf of the Borrower of the IFAD Loan Agreement has been duly authorized and ratified by all necessary Government actions, and all other conditions precedent to effectiveness of the said Loan have been fulfilled.

4.03 In order to facilitate the Government in incurring expenditures reimbursable under the Bank and IFAD loans, both the Bank and IFAD will finance separate Special Accounts to be established at the Central Bank. An amount of US\$0.25 million from the Bank and US\$0.25 million from IFAD equivalent to about four months' expenditures on items to be procured under international shopping or limited international tendering will be deposited in each of these accounts upon loan effectiveness. The Government will use these funds to effect payments to suppliers for eligible goods and services. Thereafter, the Bank and IFAD will replenish the account out of the proceeds of the loans upon receipt of evidence of disbursements made from the Special Account for agreed expenditures.

C. Procurement

4.04 The project's procurement arrangements are summarized in Table 4.03 below:

Table 4.3: PROCUREMENT ARRANGEMENTS
(US\$ million)

<u>Project Elements</u>	<u>ICB</u>	<u>LIB</u>	<u>IS</u>	<u>Procurement Methods</u>	
				<u>Other</u>	<u>Total /a</u>
Equipment, Vehicles & Materials	12.7 (5.0)	3.6 (1.3)	0.7 (0.3)	- (-)	17.0 (6.6)
Technical Assistance & Training	- (-)	1.9 (0.9)	- (-)	1.6 (-)	3.5 (0.9)
Incremental Operating Costs	- (-)	- (-)	- (-)	15.8 (-)	15.8 (-)
Total (Bank financed)	12.7 (5.0)	5.5 (2.2)	0.7 (0.3)	17.4 (-)	36.3 (7.5)

/a Total including price and physical contingencies.

Note: Figures in parenthesis are the respective amounts to be financed by the Bank.

4.05 Equipment, Vehicles and Materials (US\$17.0 million, including contingencies). These include extension, demonstration and office equipment; demonstration material; teaching aids; vehicles; farm machinery, audiovisual aids; and mass media equipment. The Directorate of Extension will group, to the extent possible, orders for vehicles and equipment in packages of US\$100,000 equivalent, or more, and submit them to International Competitive Bidding (ICB) in accordance with the Bank procurement guidelines. Contracts for extension training, office and teaching equipment, materials and farm machinery estimated to cost US\$30,000 equivalent or more per contract and up to US\$100,000 per contract and not exceeding US\$3.6 million in the aggregate will be procured by Limited International Bidding (LIB) on the basis of comparing and evaluating bids invited from at least three qualified suppliers. Contracts for small items (mainly agricultural and teaching tools and materials) estimated to cost less than US\$30,000 per contract and not exceeding US\$0.7 million in the aggregate will be procured by International Shopping (IS) on the basis of comparing price quotations solicited from at least three qualified suppliers.

4.06 Services. The project will finance a total of 64 s/m of consultant services, which are estimated to cost US\$1.1 million. Recruitment of consultants, in all cases, will be carried out under the Bank's Guidelines for the Use of Consultants dated August 1981. In addition, the project will finance US\$2.4 million for project-related training to be provided by local and international organizations.

D. Implementation Schedule

4.07 The project will be implemented over a four-year period by the Directorate of Extension, an existing organization which already has the basic facilities and staff in place (paras 2.06 and 2.08). SMSs and supervisory staff will be selected from among the most experienced staff already working at various agricultural offices and transferred to the Directorate of Extension by June 30, 1986 (paras 3.12 and 3.14). Some incremental staff will be recruited during the first year of the project but most of them will be recruited during the third and fourth years of the project. About 50% of the existing staff have already received extension methodology training—considered to be prerequisite for extension activities, and by mid 1989 all project staff will have had received such training. Therefore, project implementation has been designed on a four-year basis. Based on Government's progress in the construction and staffing of the extension units and in the extension methodology training (paras. 2.06 and 2.08), the proposed project's implementation program is realistic. Staff training will take place over the whole project life. Curricula for all project related training have been drafted and it will be finalized by April 30, 1986 (para 3.26). Procurement of equipment and vehicles will have two deliveries, one towards the beginning of the second year and the other, one year later. Tender documents for ICB and LIB procurement were finalized by MAAR on May 1985, and reviewed by the Bank in June 1985. Advertisement of ICB procurement is expected to take place in September 1985. Recruitment of experts will take place over the project life with short-term consultants recruited over the second, third and fourth years, and training expert over the last two years. Terms of Reference for all required consultants have already been prepared. Extension activities and incremental operating costs are expected to have an upward trend during the project life and to stabilize in 1989. Assurances were obtained from the Government that the project will be implemented in conformity with the schedule agreed upon during negotiations. By September each year, the department of extension at each Mohafaza will prepare a detailed annual work program for the following year specifying, for each quarter, the type of extension activities to be carried out including budgetary requirements. The work program will be supported with appropriate background data including estimates of required manpower, demonstration activities, required materials, staff training and extension activities. The Directorate of Extension will review the Mohafaza annual work program and will consolidate them into the overall Extension Work Program not later than October 1 each year. By October 31 of each year, the Directorate of Extension will submit to the Bank the annual Extension Work Program for the following year. This program will be the basis for project monitoring at Mohafaza and national levels (para. 3.35).

E. Disbursement

4.08 The proposed Bank loan of US\$7.5 million equivalent and IFAD loan of SDR 7.55 million (US\$7.5 million) equivalent will extend over five years. Disbursements between the Bank and the Fund loans for all categories will be on a 50:50 ratio. Bank loan will be disbursed as follows:

- (a) vehicles, equipments and materials, 50% of foreign expenditure on directly imported goods, or 37.5% of local expenditures for goods procured locally;
- (b) consultancy services, study tours, and local and foreign technical training on specialized subjects, 50% of total cost.

Disbursements for vehicles and equipment under category (a) and for items under category (b) for contracts valued at US\$10,000 equivalent and more will be fully documented. Disbursements for materials under category (a) and for contracts valued at no more than US\$10,000 equivalent under categories (a) and (b) will be made against statements of expenditures--the documentation of which will be audited and retained for review by Bank missions. Disbursements under the loan will be completed by October 1990, or about one year after project completion. The proposed schedule features an accelerated disbursement period of five years, which is considerably shorter than the country profile of about nine years. However, the livestock project, implemented by MAAR, the same institution to implement this project was fully disbursed in six and one half years. Even the Lower Euphrates Drainage project which had many initial implementation difficulties is not expected to take more than 6 years to disburse. The considerations supporting the proposed schedule are that (a) the project will be implemented by MAAR which has experience of ICB tendering procedures; (b) tender documents have been finalized and announcement is expected shortly; and (c) most of the Bank loan will be used for procurement of equipment and vehicles, items which are generally disbursed rapidly. Table 4.4 summarizes the procurement schedule detailed in Annex 2, Table 8.

Table 4.4: DISBURSEMENT SCHEDULE

	IBRD Fiscal Year				
	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
	----- (US\$ Million) -----				
Annual	0.25	0.45	2.20	2.70	1.90
Cumulative	0.25	0.70	2.90	5.60	7.50

F. Accounts and Audits

4.09 Separate project accounts will be maintained by each of the Departments of Agriculture at the Mohafaza level. These accounts will be consolidated by the Directorate of Extension. The Directorate of Extension will maintain a separate account of all transactions passing through the Special Account (para. 4.03) and will make this available to the Bank missions for review. Project accounts will be audited annually. The audit report will include, inter alia, a statement verifying that funds disbursed by the Bank and IFAD against statements of expenditures were used for the purposes for which they were provided. Assurances were obtained from the Government that (i) the Directorate of Extension at Damascus will maintain and consolidate project accounts; and (ii) project accounts will be audited annually by an independent auditor acceptable to the Bank, and audit accounts will be submitted to the Bank within nine months of the closing of each fiscal year.

G. Project Organization and Management

4.10 The overall responsibility for project implementation will rest with MAAR. The specific responsibility will be entrusted to the Directorate of Extension and its staff in the 14 Mohafaza. MAAR's Director of Extension will be the project manager (PM), assisted by his staff. The PM will be responsible for: (a) preparation and implementation of project work programs; (b) recruitment of national staff; (c) coordination of preparation of documents for the procurement of goods and services; (d) organization of training to be provided

under the project; (e) preparation and submitting to the Bank project reports and records; (f) preparation of project accounts; (g) project monitoring; and (h) recruiting international consultants to assist in extension planning and training, and in developing, monitoring progress and carrying out a midterm and ex-post evaluation of the project. MAAR will institute joint research and extension working groups with farmers' participation at headquarters and at each Mohafaza (para. 3.19).

V. BENEFITS AND JUSTIFICATION

A. Budgetary Impact

5.01 In Syria, expenditure by MAAR on Agricultural Extension, in relation to the agricultural GDP, is about 0.2%.^{1/} The project will make maximum use of existing staff within and outside MAAR and therefore minimize the need for additional staffing. However, additional costs, in terms of transport expenditures, materials and training, will increase Government's recurrent expenditure on agriculture extension by about 80% of its current level—less than 3% of MAARs total consolidated budget. This will bring the expenditures on agricultural extension to about 0.36% of agricultural GDP.

B. Benefits

5.02 Although generally constrained by inadequate and irregular rainfall, the agricultural sector in Syria holds considerable potential for increasing efficiency and production. This will come from increasing cropping intensity in irrigated areas to more than one crop a year, and by severely reducing fallow land in higher rainfall areas. In addition, the scope for improvements in cultural practices is large. Based on the research results of the two national and two international research organizations in the country (para. 2.03) and upon farm results, financially attractive technological packages have been developed for a number of the principal crops and for some livestock activities. On this basis, and in the expectation of continued generation of technological packages by the research organizations, the proposed extension service can be expected to function effectively.

5.03 The messages to be conveyed by the extension agents will be simple and concentrate on practices evoking a quick and profitable response. Such packages will include: (a) improved cultural practices; (b) more efficient irrigation methods; (c) improved varieties and better land preparation and planting techniques; (d) use of more fertilizer and pesticides and better application techniques (time and method); and (e) disease free seedling,

^{1/} During 1970-1980, expenditures on agricultural extension for middle-income developing countries accounted for about 0.9% of their GDP, and for low income developing countries, for about 0.4%. "Investing in Agricultural Supply: The Determinants of Agricultural Research and Extension Investments" by M. Ann Judd, James K. Boyce, Robert E. Evenson.

proper spacing, planting and pruning techniques for orchards. Depending on the agroecological zones, six different cropping systems with a set of technological packages have been identified. These packages will be further refined based on the analysis of the initial survey and on field demonstrations. The project is designed to benefit those farmers whose productivity is lowest because the technological packages to be disseminated first are those already being used by progressive farmers. The simplest messages concentrating on the use of improved varieties and cultural practices, involving little or no additional cash inputs, will be disseminated first. Those requiring additional levels of cash inputs will be introduced gradually thereafter.

5.04 The proposed project will serve a total of about 380,000 farm families (or about 80% of the agricultural farm population) having about 0.6 million ha of irrigated and 1.3 million ha of higher rainfall crop land. Families from irrigated areas located in lower rainfall zones (less than 350 mm per annum) also hold about 0.5 million ha of low intensity cropped and/or grazing land. The predominant crops in the proposed project area are cereals, fruit trees, industrial crops, seed legumes, and vegetables; about 140,000 ha are left fallow. Also, there are about 3.5 million sheep, 0.75 million cattle and 0.5 million goats. By the end of 1995, about 216,000 farmers will be contacted personally (about 57% of total farmers); of those contacted and reached through mass media communication, about 157,000 farm families (about 40% of total farmers) are expected to have adopted, at least partially, the improved practices. Details on number of farms contacted and expected adoption rates are presented in Annex 4, Tables 1 and 2. The financial impact of the adoption of the recommended packages have been estimated in two ways—firstly, on a per crop budget in terms of return per man day for the labor involved in using each package; and, secondly, on a per farm budget in terms of net farm income (Annex 4, Tables 3 and 4). The results show that, the proposed packages will yield returns to labor/day higher than current wage rates, despite some variations among crops. These range from about LS 340 per labor/day for HYV wheat to about LS 88 per labor/day for cotton, compared to a wage rate of LS 60 during peak periods. This will indicate that where necessary, farmers will be prepared to hire labor to carry out the recommended practices and, hence, the project will also benefit landless labor.

5.05 In the past, agricultural development strategy in Syria has aimed at achieving production increases mainly through large capital-intensive, long gestation investments in irrigation projects and improvements in the quantity and quality of inputs. The proposed project is designed to support the above mentioned investments and to have a catalytic role in bringing about the desired benefits. Therefore, to estimate the benefits accruing solely to extension is difficult and no attempt was made to calculate an economic rate of return for the project. There is, however, good evidence that improvements in the efficient utilization of available resources to be brought about by the project, will generate high returns. Calculations indicate that an annual increase of 0.1% in total agricultural production, over a period of four years, will suffice to cover the LS 67 million capital investment costs proposed under the project: it is expected that actual increase will exceed this small proportion.

C. Risks

5.06 The most significant project risk lies in the fact that the effectiveness of the new extension methodology is highly dependent on an efficient organization and management of extension staff as well as on farmer response. The availability of immediately applicable, financially attractive technological packages, and the Government's commitment to the introduction of an extension system with more intensive and better quality extension techniques are expected to minimize such risk. Furthermore, the base line survey to be undertaken under the project will permit the extension service to focus more closely upon specific needs of the various categories of farmers in each set of agroclimatic conditions.

5.07 The proposed project will deal with irrigated as well as rainfed agriculture. In the latter, due to uneven rainfall, there is a somewhat higher degree of risk that farmers might not adopt the recommended techniques. There are, however, a significant number of improved practices and research findings suitable for dissemination to rainfed farmers which can reduce this risk. These practices will include, among others, split application of nitrogenous fertilizer, improved seed bed preparation; and improved weed control.

VI. AGREEMENTS REACHED AND RECOMMENDATION

6.01 During negotiations, assurances were obtained from Government that:

- (a) the extension agents to be assigned to the project area will be suitable agricultural engineers appointed at a rate of one agent to about 250 farm families in irrigated areas and one to 500 in rainfed areas (para. 3.10);
- (b) the support centers will be established and the required number of supervisors and SMSs will be selected from the most experienced staff in other Agricultural Departments and be transferred to the extension departments at the Mohafaza and support center units no later than June 30, 1986 (paras. 3.12, 3.14);
- (c) the Training Division and the position of the Deputy Director at national level will be established and staffed no later than June 30, 1986 (para. 3.16);
- (d) it will endeavor to keep trained personnel assigned to the project during the project life (para 3.21);
- (e) the overall program and curricula of project-related training will be completed and sent to the Bank for review, no later than April 30, 1986 (para. 3.26);
- (f) it will arrange for any necessary supplementary employment compensation to participants of the training program (3.26);
- (g) expatriate experts will be appointed in accordance with World Bank guidelines under terms and conditions satisfactory to the Bank (para. 3.33);
- (h) it will carry out a midterm in-depth analysis of the project by June 30, 1988, and will submit the analysis to the Bank for review not later than December 31, 1988 (para. 3.36);
- (i) the project will be implemented in conformity with the schedule agreed upon during negotiations (para. 4.07); and
- (j) the Directorate of Extension at Damascus will maintain and consolidate project accounts; and project accounts will be audited annually by an independent auditor acceptable to the Bank with audit account be submitted to the Bank within nine months of the closing of each fiscal year (para.4.09).

6.02 As a condition of loan effectiveness, the Government will be required to submit to the Bank satisfactory evidence that the execution and delivery on behalf of the Borrower of the IFAD Loan Agreement has been duly authorized and ratified by necessary Government action, and all other conditions precedent to effectiveness of the said Loan have been fulfilled (para. 4.02).

6.03 With the above assurances, the project is suitable for a Bank loan in the equivalent amount of US\$7.5 million for 15 years, including three years of grace, at the standard variable interest rate. The Borrower will be the Syrian Arab Republic.

SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION

Indices of Agricultural Production, 1970, 1975, 1978-83
(1980 = 100)

<u>Group</u>	<u>Weight</u>	<u>1970</u>	<u>1975</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Crops:	723	40	72	70	71	100	100	100	101
Cereals	200	26	63	96	52	100	92	64	70
Dry Legumes	37	57	70	81	45	100	75	62	81
Vegetables	200	25	71	103	78	100	114	111	113
Industrial Crops	107	95	107	83	95	100	102	119	143
Fruits	65	38	63	101	73	100	97	125	99
Others	14	37	66	83	94	100	106	116	114
Livestock:	277	56	62	82	98	100	121	128	130
Milk	120	41	55	115	87	100	114	119	121
Meat	107	84	75	74	114	100	133	142	141
Eggs	35	20	48	92	99	100	114	124	128
Wool and Fiber	10	79	68	81	92	100	120	129	139
Other	5	31	45	94	77	100	88	82	106
Overall Index	1,000	45	69	86	78	100	105	108	109

Source: Central Bureau of Statistics

SYRIAN ARAB REPUBLIC

NATIONAL AGRICULTURAL EXTENSION PROJECT

Area, Production and Yields of Major Crops in Syria 1963, 1977, 1980, 1981, 1982

	Area					Production					Yield		
	1963	1977	1980	1981	1982	1963	1977	1980	1981	1982	1963	1977	1980-1982
	(000 Hectares)					(000 Tons)					Tons per Ha		
1. Cereals and Legumes													
Wheat	1559	1528	1449	1255	1222	1110	1217	2226	2087	1556	0.7	0.80	1.5
Barley	804	1021	1210	1347	1586	784	337	1587	1406	661	1.0	0.3	0.9
Lentil	75	178	85	72	58	59	117	83	61	53	0.8	0.7	0.9
Chickpeas	31	41	91	85	56	17	25	73	64	37	0.5	0.6	0.8
Dry Broad Bean	10	8	7	8	8	11	13	13	14	14	1.1	1.9	1.8
Dry Haricot Bean	2	6	7	6	6	1	11	12	11	12	0.9	1.8	1.8
Maize	NA	23	23	21	22	NA	59	48	46	49	-	2.6	2.2
2. Vegetables													
Tomato	24	33	35	40	36	166	454	644	722	790	6.9	13.8	19.4
Cauliflower & Cabbage	-	6	6	7	7	-	165	220	184	183	-	27.5	29.4
Cucumber	8	19	25	23	25	39	178	274	272	282	4.9	9.4	11.3
Eggplant	4	6	9	9	9	36	114	184	188	170	9.0	19.0	20.0
Broad Bean	2	7	8	9	10	23	52	68	70	81	11.5	7.4	8.1
Green Bean	1	1	1	2	1	7	5	8	6	8	7.0	5.0	5.0
Dry Onion	5	9	9	9	10	36	162	151	175	187	7.2	18.0	18.3
Water Melon	70	88	100	103	101	307	717	906	969	869	4.4	8.2	9.0
Potato	4	13	19	22	17	32	164	292	311	279	8.0	12.6	15.2
3. Fruits & Nuts													
Olive	111	228	249	258	266	68	175	392	207	471	0.6	0.8	1.4
Grape	70	94	99	100	101	159	353	356	409	423	2.3	1.8	4.0
Apple	7	19	24	25	26	28	61	89	104	139	4.0	3.2	4.4
Apricot	9	12	13	13	13	28	32	48	49	81	3.1	2.7	4.6
Peach, Plum & Cherry	4	14	17	18	19	9	55	73	74	102	2.2	3.9	4.6
Citrus	1	6	7	8	9	5	13	66	73	82	5.0	2.2	9.2
Almond	2	8	19	21	19	2	16	11	8	9	1.0	2.0	0.5
Pistachio	5	13	19	22	24	1	5	8	9	8	0.2	0.4	0.4
4. Industrial Crops													
Cotton Seed	293	187	139	143	158	410	395	323	356	422	1.4	2.11	2.5
Sugarbeet	4	12	22	22	29	87	273	504	564	860	21.8	22.75	26.4
Tobacco	1	15	13	13	14	1	12	14	12	14	1.0	0.8	1.0

SYRIAN ARAB REPUBLIC

NATIONAL AGRICULTURAL EXTENSION PROJECT

**Official Procurement Prices 1/of Selected Crops 1975, 1978 through 1984
(LS per ton)**

	1975	1978	1979	1980	1981	1982	1983	1984	% Change 1984-1975
Wheat									
Soft	500	640	620	700	950	1190	1230	1230	146
Durum	520	690	700	800	1050	1320	1380	1380	165
Barley									
Black	400	500	500	570	720	800	820	820	105
White	410	510	510	570	720	800	820	820	100
Lentils									
Red	1150	800	800	1100	1200	1510	1600	1600	39
White	1250	850	850	1350	1900	2250	2500	2500	100
Seed Cotton 2/	1350	1830	1880	2250	3200	3850	3900	3900	189
Sugarbeet									
Autumn	125	130	135	165	220	290	310	310	148
Summer	140	145	150	175	220	290	310	310	121
Maize	NA	800	800	850	1450	1550	1700	1700	113 3/

Source: Ministry of Agriculture and Agrarian Reform.

- 1/ Prices announced before planting season. Bonuses are paid to farmers for early delivery to government centers and for produce delivered by cooperatives.
- 2/ Average for all grades; premiums and discounts are applied for quality, humidity, etc.
- 3/ Percent change calculated between 1984 and 1978.

SYRIA ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION

OFFICIAL PROCUREMENT PRICES AND INTERNATIONAL PRICES OF SELECTED CROPS, 1978-84
(US \$/Ton, Fob) 1/

Year	<u>Wheat (soft)</u>		<u>Maize</u>		<u>Cotton 2/</u>		<u>Sugarbeets</u>		<u>Sugar (refined) 3/</u>	
	Syria	Internat.	Syria	Internat.	Syria	Internat.	Syria	US	Syria	Internat.
1978	177	135	203	101	1,219	1,570	36	25	208	182
1979	177	172	203	116	1,252	1,690	46	34	218	223
1980	177	191	215	125	1,499	2,050	56	47	228	642
1981	171	196	266	131	1,545	1,850	53	29	225	384
1982	218	167	284	109	1,859	1,600	57	35	229	196
1983	226	170	312	136	1,931	1,850	61	35	223	120
1984	226	170	312	138	1,931	1,790	61	37	233	120

Sources: For Syrian Prices - Central Bureau of Statistics
For International Prices - IBRD Commodity Trade and Price Trade, 1983-84 Edition, and estimates of Commodities Division.

1/ Syrian Prices are converted to \$, using official exchange rate of SL 3.95/US\$, from 1978 thru 1980 and the parallel market rate of SL5.45/\$ in 1981-84.

2/ Ginned. A ginning rate of 38% is assumed. International price is Cif N. European.

3/ Assuming an extraction rate of 13% per ton of sugarbeets, and \$172/ton cost of processing to produce a ton of refined sugar; the cost of processing is based on the 1980-82 US average. International prices of raw sugar have been increased by \$10/ton to present prices of refined sugar.

SYRIAN ARAB REPUBLIC

NATIONAL AGRICULTURAL EXTENSION PROJECT

Recommended Extension Packages

1. Wheat. Use of high yielding varieties (improved Hurani, Mexipak, Jori and Pavon); early autumn plowing (before first rain) especially under rainfed conditions; November planting; fertilizer applications of about 120 kg/ha N and 80 kg/ha P₂O₅ for irrigated and high rainfall areas (more than 500 mm) and 80 kg/ha N and 50 kg/ha P₂O₅ for medium rainfall areas (350 mm-500 mm); split application of nitrogen fertilizer; seed treatment against smut; and weed control.
2. Seed Legumes (lentils). Use of varieties (Red Hamawi, Kurdi, and Hurani); early autumn plowing (before first rain); November/December planting; and fertilizer applications of about 20 kg/ha N and 50 kg/ha P₂O₅.
3. Watermelon. April planting; fertilizer applications of about 90 kg/ha N, 60 kg/ha P₂O₅, and 45 kg/ha K₂O, and 55 kg/ha N, 35 kg/ha P₂O₅ and 25 kg/ha K₂O, under high and medium rainfall conditions respectively; and disease control against powdery mildew and fusarium root rot.
4. Cotton. High yielding varieties (Aleppo 40, Acalas G4 and Tashk and 3); mechanical seeding and harvesting; fertilizer applications of about 150 kg/ha N, 75 kg/ha P₂O₅, and 150 kg/ha K₂O under irrigated conditions; split application of nitrogen fertilizer; and pest control.
5. Vegetables (Tomatoes). Use of disease free seedlings; control against aphids, white fly and blight; fertilizer applications of about 150 kg/ha N, 100 kg/ha P₂O₅, and 100 kg/ha K₂O under irrigated conditions; split application of nitrogen fertilizer.
6. Olives. Annual pruning; autumn and spring plowing; fertilizer applications of about 65 kg/ha N, 100 kg/ha P₂O₅, and 40 kg/ha K₂O under high rainfall and 50 kg/ha N, 75 kg/ha P₂O₅, and 30 kg/ha K₂O medium rainfall conditions; control against olive moth and olive fly; root rot free seedlings are recommended for establishment of new orchards.
7. Grapes. Autumn and spring plowing; fertilizer applications of about 110 kg/ha N, and 50 kg/ha P₂O₅, and 60 kg/ha N under high rainfall and 40 kg/ha P₂O₅ under medium rainfall conditions respectively; control against powdery mildews and grape berry moth.
8. Citrus. Autumn and spring plowing; fertilizer applications of about 150 kg/ha N 300 kg/ha P₂O₅ and 100 kg/ha K₂O under irrigated conditions, pest control; disease free seedlings are recommended for the establishment of new orchards.

9. Livestock (Sheep). Disease control through vaccination against sheet pox, drenching against internal parasites, and dipping against external parasites; better and selective feeding (feed availability will increase with increasing crop yields and production); and early weaning. Cattle and selective feeding through concentrate supplementation and fodder production; and disease prevention (mastitis).

SYRIAN ARAB REPUBLIC

NATIONAL AGRICULTURAL EXTENSION

Directorate of Extension: Existing and Project Staff Requirements

	<u>Pre-project</u>		<u>With Project</u>				<u>Incremental</u>
	<u>Total</u>	<u>Project Area</u>	<u>Project Year</u>				
			<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	
A. National Level							
Director	1	1	1	1	1	1	-
Deputy Director	-	-	1	1	1	1	1
Training Section							
Chief	-	-	1	1	1	1	1
Trainers	2	2	3	3	3	3	1
Field Extension Section							
Chief	1	1	1	1	1	1	-
Agriculturists	7	7	7	7	7	7	-
Livestock Specialist	-	-	1	1	1	1	1
Economists	-	-	2	2	2	2	2
Statistical Assistants	-	-	2	2	2	2	2
Information Section							
Chief	1	1	1	1	1	1	-
Engineers	4	4	6	6	6	6	2
Assistants	7	7	7	7	7	7	-
Women Development Section	1	-	-	-	-	-	-
Administration Section							
Administration Officer	1	1	1	1	1	1	-
Assistants	2	2	5	5	5	5	3
Drivers	-	-	5	5	5	5	5
<u>Subtotal</u>	<u>27</u>	<u>26</u>	<u>44</u>	<u>44</u>	<u>44</u>	<u>44</u>	<u>18</u>
B. Mahafaza Level							
Chief	13	13	14	14	14	14	1
Deputy Chief	-	-	14	14	14	14	14
Field Section	28	28	36	36	36	36	8
Subject Matter Specialists 1/	-	-	52	52	52	52	52
Women Development Section	13	-	-	-	-	-	-
Information Section	13	13	14	14	14	14	1
Administrative Officers	-	-	14	14	14	14	14
Administrative Assistants	-	-	14	14	14	14	14
Drivers	-	-	14	14	14	14	14
<u>Subtotal</u>	<u>67</u>	<u>54</u>	<u>172</u>	<u>172</u>	<u>172</u>	<u>172</u>	<u>118</u>
C. Support Centers/Mantika/Nahia							
Extension Supervisors	-	-	60	60	60	60	60
Subject Matter Specialists 1/	-	-	20	50	62	62	62
<u>Subtotal</u>	<u>-</u>	<u>-</u>	<u>80</u>	<u>110</u>	<u>122</u>	<u>122</u>	<u>122</u>
D. Extension Units							
Extension Agents	991	826	826	826	880	1100	274
Vet. Assistants	136	-	-	-	-	-	-
<u>Subtotal</u>	<u>1127</u>	<u>826</u>	<u>826</u>	<u>826</u>	<u>880</u>	<u>1100</u>	<u>274</u>
Total	1221	906	1122	1152	1218	1438	532

1/ These would be transferred from other Directorates.

**SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION PROJECT**

Procurement Schedule: Vehicles and Equipment

Item	Number	Unit Base Cost (LS'000)	Total Cost ^{1/} (LS'000)	Expected Delivery (No) ^{2/}				Method of Procurement	Schedule Number
				85/86	86/87	87/88	88/89		
I. Vehicles									
Station Wagons	5	55	327	--	5	--	--	ICB	A-1
Four Wheel Drive	50	60	3,563	--	50	--	--	ICB	A-2
Microbuses	15	98	1,746	--	15	--	--	ICB	A-3
Pickups	538	40	26,184	--	372	166	--	ICB	A-4
Motorcycles	665	5	4,090	--	365	300	--	ICB	A-5
Spare parts			7,182						
Subtotal			43,092						
II. Equipment									
A. Extension Service Equipment									
Motorized Sprayer									
Duster	300	2.0	713	--	300	--	--	ICB	B-6
Irrigation Syphon Tube	4,500	0.1	481	--	4,500	--	--	LIB	
Spades or Shovel	1,100	0.1	141	--	420	340	340	LIB	
Blackboard	1,590	0.25	473	--	1,485	--	--	LIB	
Refrigerator	50	5	297	--	50	--	--	LIB	
Computer	1	100	119	--	1	--	--	LIB	
Pruning Shear	600	0.1	74	--	300	300	--	IS	
Pruning Saw	600	0.05	37	--	300	300	--	IS	
Spring Balance	800	0.1	105	--	120	340	340	IS	
Tape Measures 50mm	1,100	0.1	112	--	420	340	340	IS	
Low Power Lense	1,100	0.1	84	--	420	340	340	IS	
Grafting Knife	600	0.1	52	--	300	300	--	IS	
Volumetric Measure	800	0.05	52	--	120	340	340	IS	
Demo. Wall Sheet	489	0.5	302	--	489	--	--	IS	
Demo. Sample	489	1.2	726	--	489	--	--	IS	
Meteorological Equip.	489	0.6	342	--	489	--	--	IS	
Apiary Equipment	150	0.5	89	--	150	--	--	IS	
Soil Auger	39	0.5	23	--	39	--	--	IS	
Pruning Equipment	39	0.3	14	--	39	--	--	IS	
Calculator	80	0.5	47	--	80	--	--	IS	
Typewriter, Arabic	15	5	89	--	15	--	--	IS	
Typewriter, English	2	6	14	--	2	--	--	IS	
Spare parts			658						
Sub-total			5,044						

^{1/} Including Contingencies

^{2/} Latest delivery day

^{3/} To be financed by the Government when direct purchase applied.

SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION PROJECT
Procurement Schedule: Vehicles and Equipment

Item	Number No	Unit Base Cost 1/ (LS'000)	Total Cost LS'000)	Expected Delivery (No) 2/				Method of Procurement	Schedule Number
				85/86	86/87	87/88	88/89		
B. Demonstration Equipment									
Seed Drill with Fertilizer	24	18	513	--	24	--	--	ICB	B-7
Fertilizer Distributor	39	11	510	--	39	--	--	ICB	B-8
Tractor Mounted Sprayer	39	14	649	--	39	--	--	ICB	B-9
Seed Cleaner	16	6	190	--	16	--	--	ICB	B-10
Cultivator	21	7.5	187	--	21	--	--	ICB	B-11
Land Leveler	18	9	192	--	18	--	--	ICB	B-12
Sugarbeet Planter	15	8	143	--	15	--	--	ICB	B-13
Potato Lifter	16	4	76	--	16	--	--	ICB	B-14
Row Crop Converter Kid	23	6	164	--	23	--	--	IS	
Animal Equipment	19	6	135	--	19	--	--	IS	
Spare Part	--	--	690	--	--	--	--		
Sub-total			3,448						
C. Audiovisual Equipment									
Slide Projector and Screen	501	1.8	1,071	--	501	--	--	ICB	C-15
Battery Operated Megaphone	500	1	595	--	500	--	--	ICB	C-16
Video Recorder & TV	51	14	849	--	51	--	--	ICB	C-17,18
Photocopy Machine	15	38	677	--	15	--	--	ICB	C-19
Video Camera and Accessories	1	120	143	--	1	--	--	ICB	C-20
Cassette Editing Video System	1	80	95	--	1	--	--	ICB	C-21
Video Teyps	800	0.03	38	--	800	--	--	ICB	C-22
Generators	45	1.8	96	--	45	--	--	ICB	C-23
Camera 35mm SLR	51	1.5	91	--	51	--	--	IS	
Slide Library 3/	15	5	89	--	15	--	--	IS	
Reference Library (set) 3/	50	2.5	153	--	50	--	--	IS	
Publications (set) 3/	450	0.5	267	--	450	--	--	IS	
Spare parts			416						
Sub-total			4,580						
Total Equipment			56,164						

1/ Including Contingencies
2/ Latest delivery day
3/ To be financed by the Government when direct purchase applied.

SYRIAN ARAB REPUBLIC

National Agricultural Extension Project

Extension Methodology Training: Staff Training Schedule

(Staff Number)

	<u>85/86</u>	<u>86/87</u>	<u>87/88</u>	<u>88/89</u>	<u>89/90</u>	<u>90/91</u>
Trained	460	706	926	1136	1336	1526
Available (Less 5% annual attrition)	<u>450</u>	<u>670</u>	<u>880</u>	<u>1080</u>	<u>1270</u>	<u>1450</u>
National	20	20	20	20	20	20
Mohafaza	70	130	130	130	130	130
Support Centers	40	100	110	122	122	122
Extension Units	320	420	620	808	998	1178 2/
New Trainees 1/	<u>256</u>	<u>256</u>	<u>256</u>	<u>256</u>	<u>256</u>	<u>256</u>
Total	706	926	1,136	1,336	1,526	1,706

1/ Assumes that from 1985 onward 95% of the trainees from Extension Methodology Training would be extension project staff.
 2/ Of which only 1100 will be assigned to the project area.

SYRIA ARAB REPUBLIC

National Agricultural Extension Project

Subject Matter Specialists: Estimated Distribution of Proposed Staff

Mohafaza	Support Centers	Subject Matter Specialist					Location of SMSs		Totals	
		Field Crops	Irrig. Agron.	Veget.	Tree Crops	Animal Husbandry	Mechanization	Support Mohafaza Centers		
Damascus	3	2	3	2	2	1	1	9	2	11
Dara'a	1	1	-	1	2	1	1	-	6	6
Swaida	1	1	-	1	2	1	1	-	6	6
Quneitra	1	1	-	1	1	1	-	-	4	4
Homs	3	2	3	1	1	1	1	5	4	9
Hama	3	2	3	1	1	1	1	5	4	9
Ahab	2	1	2	1	1	-	-	2	3	5
Lattakia	3	1	2	2	2	1	1	6	3	9
Tartous	3	1	1	2	2	1	1	4	4	8
Idleb	3	2	-	1	2	1	1	4	3	7
Aleppo	4	3	3	1	1	1	1	6	4	10
Hassakeh	4	3	4	1	1	1	1	7	4	11
Al Rakkah	4	3	4	-	-	1	1	7	2	9
Deir Ezaor	4	3	4	-	1	1	1	7	2	9
Total	39	26	29	15	19	13	12	62	52	114
Mohafaza 1/ Support Center		6	1	9	11	13	12			52
		20	28	6	8	-	-			62

1/ SMSs to be assigned to the Mohafaza departments of Extension are as follows: all SMS assigned to Dera'a, Swaida and Quneitra, and SMSs where only one of any specialization is assigned to the Mohafaza.

FRYAN AND REPUBLIC
NATIONAL AGRICULTURAL EXTENSION PROJECT
TRAINING & TECHNICAL ASSISTANCE
Detailed Cost Table
(US \$'000)

Appendix 2
Table 3

	Unit	Quarter					Unit Cost	Base Costs					Totals Including Contingencies					Totals Including Contingencies (US\$ '000)				
		05/66	06/66	07/66	08/66	Total		05/66	06/66	07/66	08/66	Total	05/66	06/66	07/66	08/66	Total	05/66	06/66	07/66	08/66	Total
I. INVESTMENT COSTS																						
A. TRAINING																						
1. Extension Methodology																						
Trainers Stipend	Trainers	-	90	270	270	430	3	-	450	1,350	1,350	3,150	-	360	1,081	1,081	4,530	-	142	429	429	1,094
Materials	Trainers	-	90	270	270	430	1	-	90	270	270	430	-	112	342	391	866	-	28	92	99	219
Sub-Total Extension Methodology																						
2. SUBJECT MATTER SPECIALISTS																						
Field Crops (Rainfed) /a	Trainers	-	13	10	10	35	13	-	225	150	150	525	-	280	281	217	699	-	71	51	53	177
Irrigation Systems /b	Trainers	-	13	10	10	35	13	-	225	150	150	525	-	280	281	217	699	-	71	51	53	177
Vegetables /c	Trainers	-	10	13	-	23	10	-	100	130	-	230	-	124	261	-	386	-	32	31	-	63
Tree Crops /d	Trainers	-	10	10	3	23	10	-	100	100	30	230	-	124	134	72	331	-	32	34	18	84
Animal Husbandry /e	Trainers	-	-	10	10	20	15	-	-	130	130	260	-	-	281	217	499	-	-	51	53	104
Mechanization /f	Trainers	-	10	10	-	20	10	-	100	100	-	200	-	124	134	-	259	-	32	34	-	66
Sub-Total SUBJECT MATTER SPECIALISTS																						
3. Project Administration																						
Extension Supervisor	Trainers	35	35	-	-	70	6	210	210	-	-	420	244	241	-	-	505	42	44	-	-	128
Project Orientation	Trainers	100	100	100	100	1,100	0.5	130	130	130	100	590	174	187	201	145	707	44	47	51	37	179
English Lessons	Trainers	3	3	-	-	10	10	30	30	-	-	100	30	62	-	-	120	15	16	-	-	30
Stake Tours /d	Trainers	-	2	4	4	10	34	-	40	80	80	200	-	60	120	120	220	-	15	33	33	81
Sub-Total Project Administration																						
Sub-Total TRAINING																						
B. TECHNICAL ASSISTANCE																						
1. Trainers																						
Empiricist Training Expert /h	Staff/month	-	6	12	12	30	49.5	-	277	394	394	1,465	-	370	777	861	2,408	-	94	282	218	513
Sub-Total Trainers																						
2. Management																						
Extension Advisor	Staff/month	-	-	3	3	6	30	-	-	150	150	300	-	-	284	217	499	-	-	51	53	104
Rural Media Communicator-Expert	Staff/month	-	6	-	-	6	30	-	300	-	-	300	-	372	-	-	372	-	93	-	-	93
Materials & Evaluation Exp.	Staff/month	2	7	7	6	22	30	100	250	250	300	1,100	114	436	470	433	1,493	29	110	119	110	349
Sub-Total Management																						
Sub-Total TECHNICAL ASSISTANCE																						
Total INVESTMENT COSTS																						
II. RECURRENT COSTS																						
A. SALARIES & ALLOWANCES																						
Training Coordinator	LS	1	1	1	1	4	24	24	24	24	24	96	77	29	31	33	119	7	7	8	8	30
Trainers Officer	LS	1	1	1	1	4	20	20	20	20	20	80	22	24	26	28	99	6	6	6	7	25
Travel Allowances	LS	2	2	2	2	8	7.5	15	15	15	15	60	17	18	19	21	74	4	5	5	5	19
Sub-Total SALARIES & ALLOWANCES																						
B. IN SERVICE TRAINING /i																						
LS		425	700	285	285	1,405	0.3	120	60	62	62	311	142	71	79	85	377	36	18	20	22	95
Total RECURRENT COSTS																						
Total																						

/a TRAINING
/b ACSAD
/c AGRICULTURE
/d AGRICULTURE
/e ACSAD
/f AGRICULTURE
/g AGRICULTURE
/h For Extension Methodology at Chania Center
/i For a period of 3-6 days for all Field Staff.

SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION PROJECT
Summary Accounts by Year
(LS '000)

	Base Costs					Foreign Exchange	
	85/86	86/87	87/88	88/89	Total	%	Amount
I. INVESTMENT COSTS							
A. EQUIPMENT & VEHICLES							
1. Vehicles	-	25,740.0	9,760.0	-	35,500.0	74.2	28,334.2
2. Equipment	-	10,050.8	717.1	152.5	10,920.4	74.1	8,095.5
3. Materials	61.0	1,351.2	2,699.8	3,991.7	8,124.5	32.8	2,662.3
Sub-Total EQUIPMENT & VEHICLES	61.0	37,142.0	13,166.9	4,144.2	54,552.9	60.0	37,092.0
B. TECHNICAL ASSISTANCE & TRAINING							
1. Foreign Consultant	100.0	847.0	1,094.0	1,044.0	3,185.0	100.0	3,185.0
2. Foreign Training	-	48.0	88.0	88.0	240.0	90.0	216.0
3. Local Training	410.0	1,700.0	2,570.0	2,220.0	6,900.0	1.8	128.0
Sub-Total TECHNICAL ASSISTANCE & TRAINING	510.0	2,695.0	3,760.0	3,360.0	10,325.0	34.2	3,527.0
Total INVESTMENT COSTS	591.8	39,837.0	16,946.9	7,504.2	64,877.9	62.6	40,619.0
II. RECURRENT COSTS							
A. SALARIES & ALLOWANCES	3,411.5	4,404.0	6,193.5	10,865.5	24,874.5	0.0	0.0
B. OPERATION & MAINTENANCE	-	3,025.3	8,278.8	10,653.1	22,957.1	30.2	6,925.4
C. OTHER COSTS	10.0	10.0	10.0	10.0	40.0	20.0	8.0
Total RECURRENT COSTS	3,421.5	7,439.3	14,481.3	21,528.6	47,870.7	14.5	8,933.4
Total BASELINE COSTS	4,013.3	47,276.3	31,428.1	28,972.8	112,690.5	42.2	47,552.4
Physical Contingencies	230.3	2,566.1	1,944.4	1,818.2	8,557.0	41.0	2,607.1
Price Contingencies	242.0	6,542.5	7,575.8	9,792.0	24,152.3	37.0	8,924.5
Total PROJECT COSTS	4,485.6	56,384.9	41,948.3	40,561.1	143,399.9	41.3	59,104.0
Taxes	4.8	6,848.2	2,698.6	435.8	9,987.3	0.0	0.0
Foreign Exchange	137.8	34,755.8	16,018.3	8,254.5	59,166.4	0.0	0.0

August 7, 1985 10:02

SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION PROJECT
Summary Account by Project Component
(LS '000)

	REORGANIZATION OF EXTENSION	FIELD DEMONSTRATION	MASS MEDIA	TRAINING & TECHNICAL ASSISTANCE		Total	Physical Contingencies	
				TRAINING	TECHNICAL ASSISTANCE		%	Amount
I. INVESTMENT COSTS								
A. EQUIPMENT & VEHICLES								
1. Vehicles	35,500.0	-	-	-	-	35,500.0	5.0	1,775.4
2. Equipment	4,163.6	2,903.1	3,053.6	-	-	10,920.4	5.0	546.0
3. Materials	-	4,304.5	3,020.0	-	-	8,124.5	10.0	812.5
Sub-Total EQUIPMENT & VEHICLES	39,671.6	7,207.6	7,073.6	-	-	54,552.8	5.7	3,133.9
B. TECHNICAL ASSISTANCE & TRAINING								
1. Foreign Consultant	-	-	-	-	3,185.0	3,185.0	10.0	318.5
2. Foreign Training	-	-	-	240.0	-	240.0	10.0	24.0
3. Local Training	-	-	-	6,900.0	-	6,900.0	10.0	690.0
Sub-Total TECHNICAL ASSISTANCE & TRAINING	-	-	-	7,140.0	3,185.0	10,325.0	10.0	1,032.5
Total INVESTMENT COSTS	39,671.6	7,207.6	7,073.6	7,140.0	3,185.0	64,877.9	6.4	4,166.4
II. RECURRENT COSTS								
A. SALARIES & ALLOWANCES								
B. OPERATION & MAINTENANCE	24,018.0	-	252.0	-	548.5	24,818.5	5.0	1,240.7
C. OTHER COSTS	20,255.4	1,181.3	1,541.5	-	-	22,978.1	5.0	1,147.9
	-	-	46.0	-	-	46.0	5.0	2.0
Total RECURRENT COSTS	44,273.4	1,181.3	1,839.5	-	548.5	47,842.7	5.0	2,390.6
Total BASELINE COSTS	83,945.0	8,388.9	8,912.1	7,140.0	3,733.5	112,699.5	5.8	6,557.0
Physical Contingencies	4,187.1	633.7	668.4	714.0	345.8	6,557.0	6.0	630.0
Price Contingencies	17,548.3	1,925.2	2,077.0	1,730.7	869.2	24,150.4	5.8	1,358.1
Total PROJECT COSTS	105,680.4	10,927.7	12,250.5	8,580.7	4,948.5	143,388.8	5.5	7,915.1
Taxes	8,438.4	331.1	1,219.9	-	-	9,989.3	5.1	511.2
Foreign Exchange	43,094.2	4,880.1	8,344.5	488.2	4,277.0	59,184.0	5.4	3,181.8

August 7, 1985 18:02

SYRIA
NATIONAL AGRICULTURAL EXTENSION PROJECT

Estimated Schedule of Disbursement of Bank Loan

Bank Fiscal Year and End Quarter	Quarterly		
	Disbursement ----- US\$ Million -----	Cumulative Disbursement ----- Percentage -----	
<u>1985/1986</u>			
September 30, 1985	0.00	0.00	0
December 31, 1985	0.00	0.00	0
March 31, 1986	0.00	0.00	0
June 30, 1986	0.25	0.25	3
<u>1986/1987</u>			
September 30, 1986	0.10	0.35	5
December 31, 1986	0.10	0.45	6
March 31, 1987	0.10	0.55	7
June 30, 1987	0.15	0.70	9
<u>1987/1988</u>			
September 30, 1987	0.50	1.20	16
December 31, 1987	0.50	1.70	23
March 31, 1988	0.60	2.30	31
June 30, 1988	0.60	2.90	39
<u>1988/1989</u>			
September 30, 1988	0.60	3.50	47
December 31, 1988	0.70	4.20	56
March 31, 1989	0.70	4.90	65
June 30, 1989	0.70	5.60	75
<u>1989/1990</u>			
September 30, 1989	0.60	6.20	83
December 31, 1989	0.50	6.70	89
March 31, 1990	0.40	7.10	95
June 30, 1990	0.40	7.50	100

Closing date: June 30, 1990

SYRIAN ARAB REPUBLIC

NATIONAL AGRICULTURAL EXTENSION

Work Schedule of Extension Agents

Specific work schedule of extension agents would be developed by the Directorate of Extension and their counterparts at the mohafaza level. It would take into account among others, the complexity of the farming system in specific areas, state of development of the agriculture, level of farmers' education and seasonality of agricultural activities. For indicative planning purposes, the following monthly work schedule has been developed:

Routine visit to contact farmers and farmer groups	16 days
Preparation and laying out field demonstrations	2 days
In-service training at support center	1 day
Conducting field days and/or farmers meeting	2 days
Extension Unit office for record keeping and available for farmers consultation	2 days
Support center in mohafaza for work programming	1 day
Mohafaza office for administrative purposes	1 day

SYRIAN ARAB REPUBLIC

NATIONAL AGRICULTURAL EXTENSION PROJECT

Technical Assistance Program: Draft Terms of Reference and Qualifications
for Consultants

A. Extension Planning Advisor

1. The Extension Planning Advisor would assist the Director of Extension on reviewing the overall planning, organization and supervision of all extension activities. In coordination with the chief of the training unit and the training advisor, he would evaluate the adequacies of the trained staff, and identify any new training needs, and as when, required. He would pay particular attention to the integration of the two approaches to agricultural extension, mainly personal contact and mass media communication, and would suggest to the Director of Extension any modifications, and as when, required.

2. The appointee would be internationally recruited, and must have an MSc in agricultural sciences (or its equivalent) with specialization in Agricultural Extension. He should have at least seven years of field experience in agricultural extension activities with at least two years of extension program planning, preferably with good knowledge in Arabic. He would be required to visit Syria for two short periods of three months each, during the third and fourth years of the project.

B. Extension Training Advisor

3. The Advisor on Extension Training would advise the Director of Extension and his training staff on: (a) planning and implementing the training course on extension methodology and communication skills; (b) planning, organizing, developing curricula and supervising the implementation of all other project-related training courses (specialized subjects, project related technology, etc. SAR paras. 3.26-3.30), and (c) planning and implementing the in-service training program (SAR para. 3.32). He would also train, the trainees in extension methodology training.

4. The appointee would be internationally recruited and must have at least an MSc in Agricultural Sciences, preferably with specialization in agricultural extension training. He should be fluent in Arabic and have at least five years of experience in agriculture training activities, with at least two years in planning and conducting training courses in agricultural extension. He would be required for a period of two years, during the third and fourth years of the project.

C. Monitoring and Evaluation Consultancy Team

5. The team of consultants would be internationally recruited to provide professional services to the Directorate of Extension within the Ministry of Agriculture and Agrarian Reform, and its counterparts at the Mohafaza level. The purpose of the service would be to introduce a comprehensive system to monitor and evaluate the impact of the extension activities proposed under the project.

6. The services to be performed by the consultants shall include, but not be limited to, the following:

- (a) assessment of the base line surveys currently being carried out by trained extension agents and development of methodological approach for analyzing field survey data so as to properly identify and quantify available resources, potential, and constraints on a microregion (extension agent territory), and to stratify farmers according to farming systems;
- (b) assessment of any other available information to be used for that purpose;
- (c) development of set of indicators that would be used to evaluate, in financial and economic terms, the effectiveness of the systems and the technological packages being introduced;
- (d) development of formats to be used in the monitoring and evaluation system, and establishing the flow of information within and (if necessary) outside the Extension Directorate;
- (e) organizing of a computerized system of data bases and analysis.
- (f) provision of on-the-job-training on monitoring and, evaluation, and on computer techniques, including data processing and analysis, to key personnel of all levels of the extension service; and
- (g) assisting the Directorate of Extension in the mid-term review, to be carried out after the third year of the project which should include an assesment of the effectiveness of extension/ research linkages and adequate of research program, and in the ex-post evaluation, to be carried out at the end of the fourth year of the project.

7. The consultancy team shall be stationed in Damascus and work in close coordination with the Training Specialist and Extension Advisor, provided under the UNDP Project No. SYR/83/002/C/01/12. The team would consist of the three members for the following periods:

	Total	Mid 1986	Early 1988	Mid 1989
	<hr/> staff/months <hr/>			
Agricultural Economist	11	6	3	2
Agronomist	8	3	3	2
Extension Specialist	3	3	3	2
Total	22	9	9	6

The Agricultural Economist should have an MSc in Agricultural Economics with suitable experience in computer data processing and analysis and at least five years of experience in agricultural project management. He would be the team leader. The Agronomist and Extension Specialists should have an MSc in agricultural Science or its equivalent. The Agronomist should have at least five years of experience in applied research and the Extension Specialist at least seven years experience in agricultural extension management. The team would be required to visit Syria for three short periods, during the first, third and fourth years of the project. All members of the team should have good working knowledge of English preferable with good working knowledge of Arabic.

SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION PROJECT
Extension Agent Activities

Farmers Contacted Per Extension Agent

	1	2	3	4	5	6	7	8	9
-----Project Years-----									
A. Rainfed Areas									
Contact Farmer 1/	6	7	8	8	8	8	8	8	8
Direct Followers 2/	-	42	67	107	145	155	160	160	160
Indirect Followers 3/	-	-	10	17	27	36	38	40	40
Total Farmers	6	49	85	132	180	199	206	208	208
B. Irrigated Areas									
Contact Farmer 1/	6	7	8	8	8	8	8	8	8
Direct Followers 2/	-	42	67	107	145	155	160	160	160
Indirect Followers 3/	-	-	6	10	16	22	23	24	24
Total Farmers	6	49	81	125	169	185	191	192	192

1/ Per Extension Agent.

2/ 1st year, 0; 2nd year, 7; 3rd year, 10; 4th year, 15; 5th year, 20 per Contract Farmer.

3/ Deferred by one year at 25% of direct followers in rainfed areas and 15% in irrigated areas.

SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION PROJECT

Total Farmers Contacted and Adopters

Farm Model	Total Number of Farmers	Project Year										% of Total
		1	2	3	4	5	6	7	8	9	10	
Rainfed (500 mm) Mechanized Farmers contacted	80,000	300	2,540	5,165	9,525	15,180	20,720	25,930	30,095	33,050	34,610	43
Adopters		--	90	822	2,118	4,429	7,747	11,675	15,913	19,229	21,642	27
Rainfed (350-500 mm) Mechanized Farmers contacted	80,000	300	2,540	5,165	9,525	15,180	20,720	25,930	30,095	33,050	34,610	43
Adopters		--	90	822	2,118	4,429	7,747	11,675	15,913	19,229	21,642	27
Irrigated Mechanized Farmers contacted	150,000	948	8,048	15,897	29,351	46,408	63,048	79,614	90,682	99,277	103,683	69
Adopters		--	379	3,503	8,915	17,764	30,155	44,339	58,789	71,635	81,860	55
Irrigated Small-scale Farmers contacted	45,000	276	2,344	4,641	8,597	13,570	18,450	23,058	26,606	29,169	30,513	68
Adopters		--	110	1,020	2,601	5,197	8,821	12,973	17,224	21,006	24,031	53
Rainfed (500 mm) Small-scale Farmers contacted	12,500	48	404	808	1,501	2,404	3,300	4,178	5,401	5,685	5,787	46
Adopters		--	14	130	332	697	1,223	1,851	2,544	3,202	3,765	30
Rainfed (350-500 mm) Small-scale Farmers contacted	12,500	48	404	808	1,501	2,404	3,300	4,178	5,401	5,685	5,787	46
adopters		--	14	130	332	697	1,223	1,851	2,544	3,202	3,765	30
Total Farmers Contacted	380,000	1,920	16,280	32,484	60,000	95,146	129,538	162,888	188,280	205,916	214,990	57
Total Adopters		--	697	6,427	16,416	33,213	56,916	84,364	112,927	137,503	156,705	41

SYRIAN ARAB REPUBLIC

NATIONAL AGRICULTURAL EXTENSION

Farm Income Financial Impact of Recommended Technological Packages

	Farm Size ha	Costs			Gross Value of Product	Net Farm Income	Benefit Cost Ratio	Labor Requirement Lab/days
		Cash £/ LS	Labor	Total				
Rainfed Farm 500 mm 1/ P 1/	7.5	7,400	7,700	15,100	26,000	10,900	1.7	154
	F 7.5	12,400	8,500	20,900	43,700	22,800	2.1	170
Rainfed Farm 350 mm 1/ P	7.5	6,400	7,200	13,600	19,100	5,500	1.4	144
	F 7.5	10,700	8,100	18,800	31,100	12,300	1.7	161
Irrigated Mechanized Farm 2/ P	5.0	10,200	10,300	20,500	28,200	7,700	1.4	206
	F 5.0	11,900	9,600	21,500	34,500	13,000	1.6	192
Irrigated small scale Farm 3/ P	1.5	5,500	11,300	16,800	33,600	16,800	2.0	226
	F 1.5	6,800	11,800	18,600	43,400	24,800	2.3	236
Rainfed Farm 500 m 4/ P	4.0	3,100	8,400	11,500	22,300	10,800	1.9	168
	F 4.0	5,600	9,700	15,300	35,800	20,500	2.3	193
Rainfed Farm 350 4/ P	4.0	3,000	7,800	10,800	15,700	4,900	1.5	156
	F 4.0	5,000	9,000	14,000	24,600	10,600	1.8	181

Note: P=Present; F=Future.
Assumes following cropping patterns

1/ P: wheat HYV = 2ha; wheat local=2.0ha; legumes=1.2ha; watermelons=0.3ha; tree crops=1.5ha; fallow=0.5

F: wheat HYV = 4.5ha; legumes=1.2; watermelon=0.3ha; tree crops=1.5ha.

2/ of which 3ha are irrigated as follows = wheat HYV=1.5ha; cotton=1.0ha; sugarbeet=0.3ha; vegetables=0.1; fruit trees=0.1ha; and 2ha are under rainfed conditions with less than 250mm of rainfall as follows: wheat local=1.5; fallow=0.5.

3/ Vegetables (tomato, eggplant and onion)=1.2ha; fruit trees (apples & citrus)=0.4ha; waste bunds=0.2ha.

4/ P: wheat local=1.0; legumes=0.5; olives=2.0ha; other tree crops (grapes)=0.5ha

F: wheat HYV=1.0; legumes=0.5; olives=2.0ha; other tree crops (grapes)=0.5ha.

5/ All input and service cash costs.

6/ All labor (family and hired) has been valued at market wage rate of LS 50/day.

SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL DEVELOPMENT PROJECT
Yields, Inputs, Mechanization and Labor Requirements

	Yield MT/ha		Seed Kg/ha	Fert. Kg/ha			Pesticides Kg/ha	Mach. hour/ha		Labor d/ha	Irrigation LS/ha	Others LS/ha	Return to Labor LS/d	
	Prod	By-Prod		N	P	K		Tractors	Combine Harv.					
Rainfed (500 mm)														
Crops														
Wheat HYV	P	2.1	2.3	125	60	40	-	0.1	11	2	10	-	80	195
	F	2.0	3.1	125	120	70	-	2.6	13	2	8	-	95	240
Wheat Local	P	1.2	1.5	110	30	-	-	-	11	1.2	9	-	65	185
	F	1.6	2.0	110	60	40	-	-	13	1.6	8	-	80	155
Lentils	P	0.9	1.1	110	-	-	-	0	10	-	19	-	40	92
	F	1.2	1.5	110	20	50	-	1	12	-	19	-	55	121
Watermelon	P	8.5	-	3	-	-	-	2	16	-	35	-	40	95
	F	12.0	-	3	90	60	45	6	18	-	40	-	70	109
Olives	P	2.0	-	5 1/2	-	-	-	2	10	-	55	-	25	117
	F	3.2	-	5 1/2	65	100	45	3	12	-	65	-	55	151
Grapes	P	5.0	-	80 1/2	35	35	-	2	9	-	80	-	105	114
	F	7.0	-	80 1/2	110	50	-	8	11	-	80	-	175	143
Rainfed (350 mm)														
Crops														
Wheat HYV	P	1.3	1.4	110	30	-	-	0.1	11	1.3	9	-	75	132
	F	1.8	2.0	110	80	50	-	0.8	13	1.7	8	-	85	202
Wheat Local	P	1.0	1.2	110	30	-	-	-	11	1.0	9	-	65	120
	F	1.3	1.6	110	50	25	-	-	13	1.6	8	-	75	175
Lentils	P	0.7	0.9	100	-	-	-	-	10	-	17	-	35	73
	F	1.0	1.3	100	20	40	-	1	12	-	17	-	50	107
Watermelons	P	6.5	-	2	-	-	-	1	15	-	30	-	35	80
	F	9.0	-	2	55	35	25	5	16	-	34	-	60	95
Olives	P	1.4	-	5 1/2	-	-	-	2	10	-	52	-	25	84
	F	2.2	-	5 1/2	30	75	30	3.0	12	-	63	-	45	105
Grapes	P	3.0	-	80 1/2	25	25	-	2	9	-	70	-	105	74
	F	4.5	-	80 1/2	60	70	-	8	11	-	75	-	155	100
Irrigated Crops														
Wheat HYV	P	2.7	3.0	125	80	80	-	1.7	14	2.2	11	400	100	204
	F	3.4	3.7	125	120	80	-	2.1	16	2.5	10	400	115	204
Cotton	P	2.5	-	37.5	100	60	100	25	15	-	105	900	150	67
	F	3.1	-	37.5	150	75	150	25	21	-	95	900	190	68
Tomato 2/	P	22.0	-	33	125	60	100	15	25	-	200	800	330	132
	F	26.0	-	33	145	120	120	30	35	-	200	700	405	157
Onion	P	18.0	-	25	50	50	-	0	6	-	160	300	50	77
	F	23.0	-	25	110	110	90	2	12	-	160	300	90	95
Apples	P	10.0	-	30 1/2	100	75	60	15	8	-	140	400	200	130
	F	15.0	-	30 1/2	175	120	100	35	24	-	160	400	350	165
Oranges	P	15.0	-	30 1/2	100	200	100	25	23	-	150	500	300	196
	F	21.0	-	30 1/2	150	300	100	45	28	-	180	500	510	231
Sugar beet	P	32.0	-	20	80	60	60	10	16	-	125	800	130	65
	F	40.0	-	20	145	75	135	12	28	-	110	800	165	91

Note: P = Present; F = Future.
1/ Seedlings/ha (annual replacement).
2/ In '000 seedlings/ha.

ANNEX 5

SYRIAN ARAB REPUBLIC

STAFF APPRAISAL REPORT

NATIONAL AGRICULTURAL EXTENSION PROJECT

Related Documents and Data Available in the Project File

A. General Reports

1. Syrian Arab Republic Development Prospects and Policies: Report of the 1977 World Bank Mission No. 1975a-SYR, Feb. 22, 1980
2. Syria Country Economic Memorandum, Report No. 3303-SYR (1982)
3. Statistical Abstracts, (Syrian Central Bureau of Statistics) 1980-1983
4. The Annual Agricultural Statistical Abstracts, (Syrian Min. of Agriculture and Agrarian Reform) 1983
5. Agriculture Policy Study in the Syrian Arab Republic, Damascus, 1985 (Prices, Marketing, Financing, Interest Rates and Savings) November 1984
6. Syrian Agriculture Sector Report #5563-SYR. March 1985

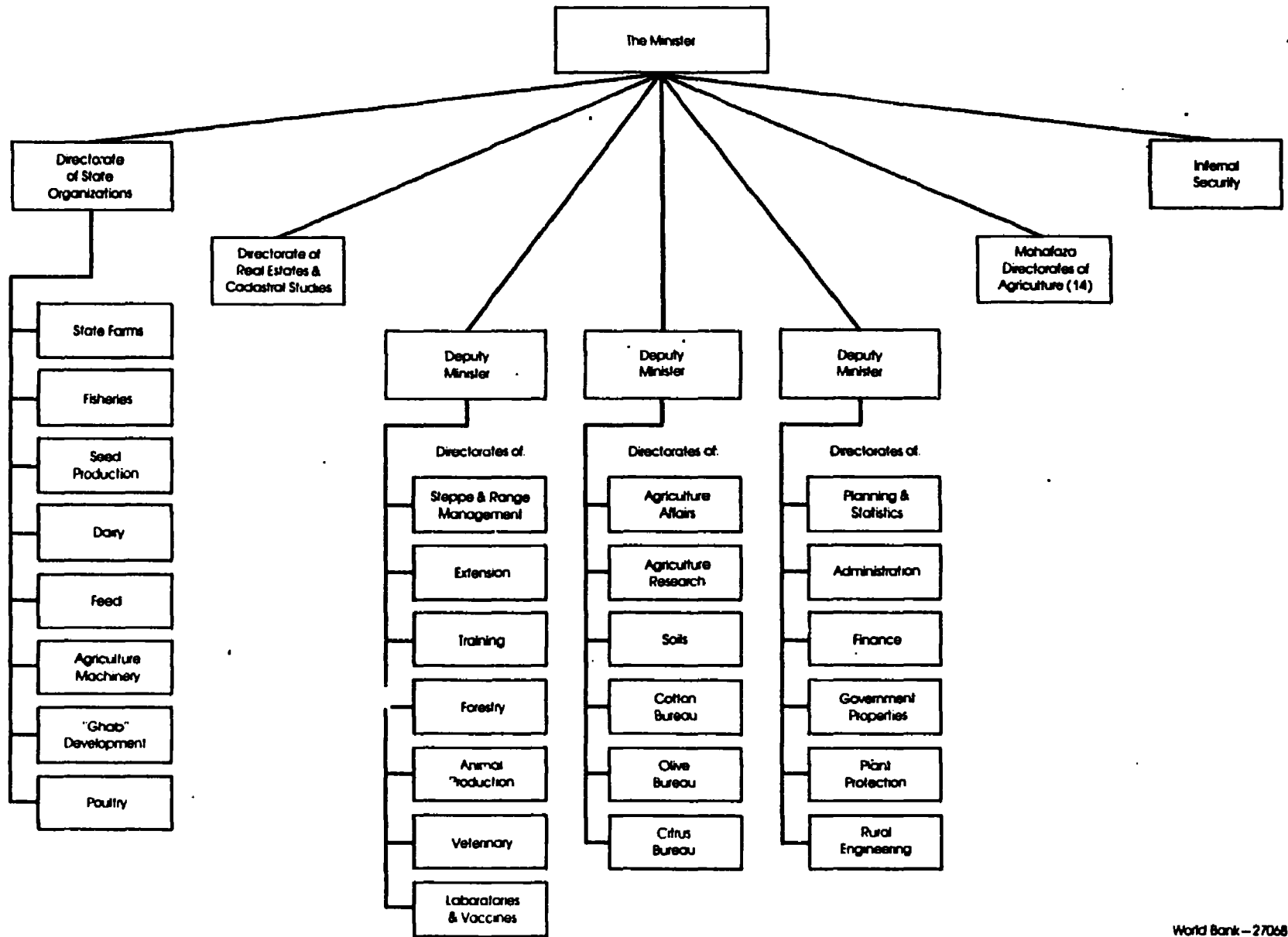
B. Selected Reports Related to the Project

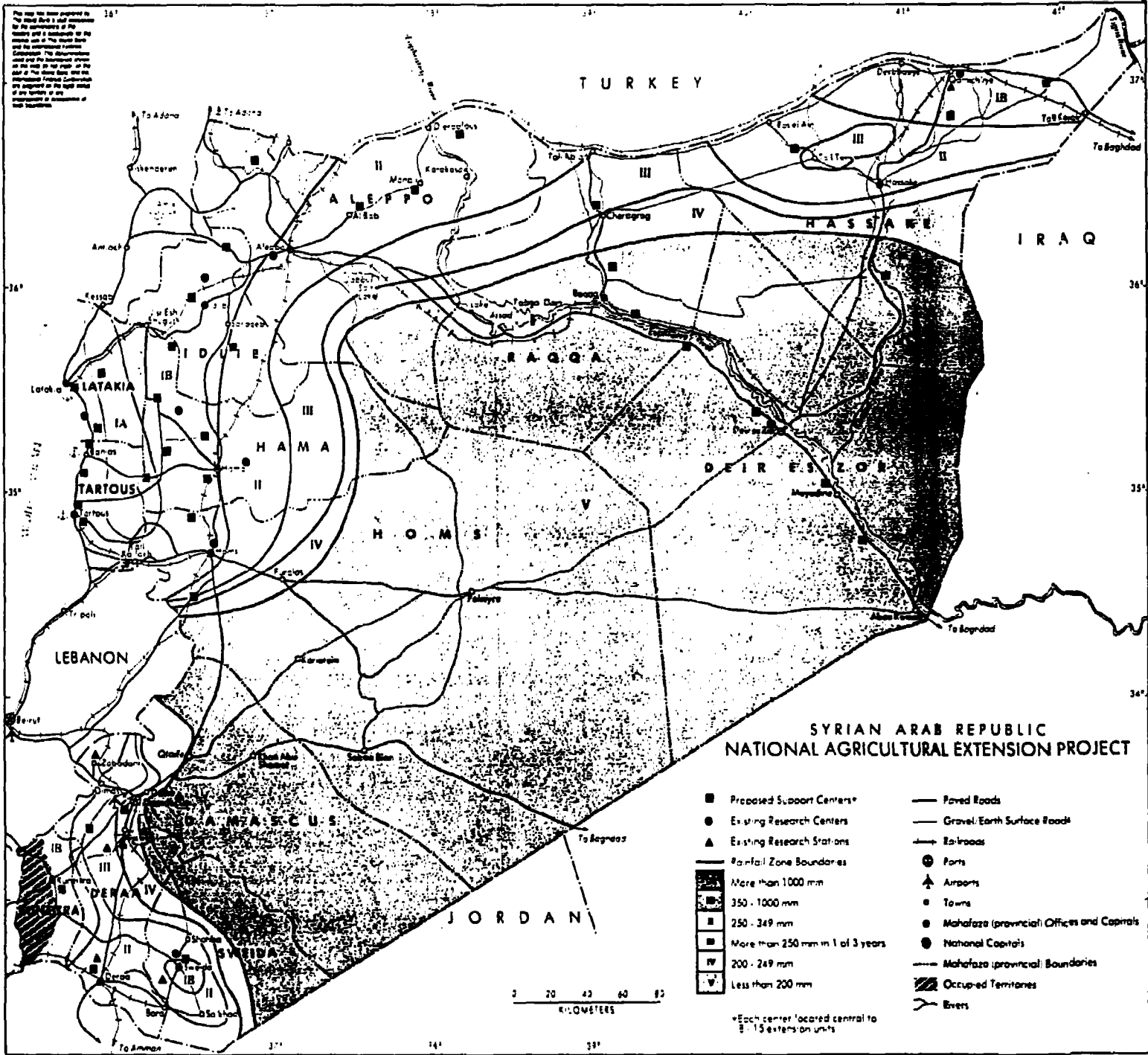
1. National Agricultural Extension Project, Preparation Report, FAO/IFAD Investment Support Program, Investment Center, FAO, Rome, 1982 Report No. 22/82 IF SYR 15, Sept. 1982
2. IBID, Follow-up Preparation Report, Report No. 22/82 IF/SYR 15, September 1983.

C. Working Papers and Tables for Project Implementation

1. Background on Syrian Agriculture, Working Paper No. 1
2. Agriculture Extension, Working Paper No. 2
3. Farming Development, Working Paper No. 3
4. Agriculture Research in Syria, Working Paper No. 4
5. Agriculture Training, Working Paper No. 5
6. Background Paper on ICARDA, Working Paper No. 6
7. Farm Model Analyses, Working Paper No. 7
8. Project Costs and Financing, Working Paper No. 8

**SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION PROJECT
(Organizational Chart of the Ministry of Agriculture and Agrarian Reform)**





The map has been prepared by the IBRD staff and is intended for the information of the Government of the Syrian Arab Republic. It is not intended to be used for any other purpose. The Government of the Syrian Arab Republic is responsible for the accuracy of the data and the scale of the map. The map is not to be used for any other purpose.

**SYRIAN ARAB REPUBLIC
NATIONAL AGRICULTURAL EXTENSION PROJECT**

- Proposed Support Centers
- Existing Research Centers
- ▲ Existing Research Stations
- Rainfall Zone Boundaries
- More than 1000 mm
- 350 - 1000 mm
- 250 - 349 mm
- More than 250 mm in 1 of 3 years
- 200 - 249 mm
- Less than 200 mm
- Paved Roads
- Gravel/Earth Surface Road
- Railroads
- ⊙ Ports
- ✈ Airports
- Towns
- Mahafaza (provincial) Offices and Capitals
- National Capitals
- Mahafaza (provincial) Boundaries
- ▨ Occupied Territories
- Rivers

*Each center located central to 15 extension units

