

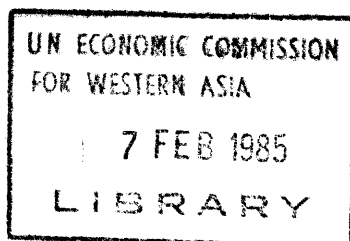
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UNITED NATIONS  
ECONOMIC COMMISSION FOR WESTERN ASIA



FOOD AND AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS



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Correspondence and manuscripts should be addressed to:

The Editor

P.O. Box 27, Baghdad, Iraq

Telephones : 5569400-20

Telex : UN ECWA IK 213303

Cable Address: UNATIONS BAGHDAD (ECWA)

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## FOREWORD

The present work is a joint publication of the United Nations Economic Commission for Western Asia (ECWA) and the Food and Agriculture Organization of the United Nations (FAO). It is the sixth document in an annual series Agriculture and Development in Western Asia prepared by the joint ECWA/FAO Agriculture Division. Its main aim is to review, describe and analyse relevant issues and developments in member countries' agriculture. This publication also seeks to underscore the need for accelerated agricultural development in the ECWA region. It is comprised of three parts. The first part contains a review and analysis of some of the important issues underlining trends in the agricultural sector and also gives a brief interpretation of any development that has taken place. The second part, which addresses itself to specific issues, covers three subjects: A Comparative Review of Agricultural Development Planning in the Near East and North Africa, Food Industries in the ECWA countries as well as the Combat of Desertification in the ECWA Region. The third part comprises the proceedings of the Expert Group Meeting on the Review of Experiences with regard to Rural Development Projects in Countries of Western Asia and the FAO/ECWA Intergovernmental Consultation on Rural Development in the Near East Region as Follow-up to the World Conference on Agrarian Reform and Rural Development.

It is hoped that this periodical will serve as a vehicle for dialogue and for dissemination of new ideas and policy proposals so as to promote agricultural development in the region.

I should like to express my gratitude to those who contributed to this issue in various ways.

M. S. Al-Attar  
Executive Secretary  
E C W A

## CONTENTS

	<u>Page</u>
Foreward .....	(i)
PART ONE	
REGIONAL AND SPECIAL REVIEW .....	1
REGIONAL REVIEW: REVIEW OF DEVELOPMENTS IN AGRICULTURAL PRODUCTION AND TRADE IN THE ECWA REGION .....	2
SPECIAL REVIEW : AGRICULTURAL PRODUCTION AND DEVELOPMENT IN IRAQ .....	19
PART TWO	
SOME ISSUES OF AGRICULTURAL DEVELOPMENT .....	44
COMPARATIVE REVIEW OF AGRICULTURAL DEVELOPMENT PLANNING IN THE NEAR EAST AND NORTH AFRICA .....	45
FOOD INDUSTRIES IN THE ECWA COUNTRIES .....	69
COMBAT OF DESERTIFICATION IN THE ECWA REGION .....	80
PART THREE	
MEETINGS HELD IN THE FIELD OF AGRICULTURE CONVENED BY ECWA .....	88
EXPERT GROUP MEETING ON REVIEW OF EXPERIENCES WITH REGARD TO RURAL DEVELOPMENT PROJECTS IN COUNTRIES OF WESTERN ASIA .....	89
FAO/ECWA INTERGOVERNMENTAL CONSULTATION ON RURAL DEVELOPMENT IN THE NEAR EASTERN REGION AS FOLLOW-UP OF THE WORLD CONFERENCE ON AGRARIAN REFORM AND RURAL DEVELOPMENT .....	93
APPENDIX TABLES .....	97

PART ONE

REGIONAL AND SPECIAL REVIEW

REVIEW OF DEVELOPMENTS IN AGRICULTURAL PRODUCTION  
AND TRADE IN THE ECWA REGION\*

I. PRODUCTION

ECWA countries show a wide variation in terms of resource endowment and levels of economic development. Although the relative importance of agriculture in the region has gradually declined over the recent past and, in an increasing number of countries, its contribution to the national economies has declined appreciably, agriculture still plays a major role in the economies of the region. The share of the agricultural sector in total GDP varies among ECWA countries and ranges between 1 and 8 per cent in Saudi Arabia, Iraq, Jordan and Lebanon, and between 17 and 29 per cent in Democratic Yemen, Syria, Egypt and the Yemen Arab Republic. Although in absolute terms agricultural output progressively increased, the relative share of agriculture to total output declining since other economic sectors grew far more rapidly.

Gross agricultural production

Agriculture performed far below expectation in the ECWA region during 1974/76-1982 (see Table 1). The slow rate of progress in agricultural production remained a matter of serious concern to all ECWA countries, with the exception of Saudi Arabia and Syria which achieved a satisfactory growth performance. The major factors which adversely affected agricultural development in the region during the 1974/76-1982 period are highlighted below.

In the past decade the development of agriculture in ECWA countries was adversely affected by fluctuating trends in production. In many countries a large part of the cultivated land is rainfed and output is subject to unpredictable climatic and rainfall patterns. Furthermore, continuous rural outmigration has meant that the agricultural sector faced acute labour shortages during the planting and harvesting of crops. Consequently, accelerated mechanization assumed increasing importance which has proved difficult to resolve in the short-run.

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\* Prepared by the Joint ECWA/FAO Agriculture Division, ECWA, Baghdad.

The overall investment pattern also continued to exhibit a considerable urban bias at the cost of agriculture and the rural areas in general. Agricultural investment allocated priority to infrastructure, irrigation and land reclamation and neglected human resources development and productive projects. In particular, small scale farmers remained short of capital to finance production operations.

Total agricultural production in Egypt during the period 1974/76-1982 registered an annual average growth rate of just 2.1 per cent. Much of the increase, however, was eroded by the country's population growth, which led to a decrease of 0.3 per cent in per capita agricultural production during the same period. However, agriculture continues to play a major role in the Egyptian economy although its development in recent years has been constrained by shortages of farm labour and lack of efficient drainage facilities. Shortages of fodder are also inhibiting livestock development. This is because agricultural production policy in Egypt is generally geared towards the allocation of scarce resources to satisfy food consumption. Current policy is trying to allocate resources according to supply and demand, but the price allocation mechanism at the farm level has not adjusted to the new measure. Possibilities for horizontal expansion are relatively limited and require huge investment. Plans for increased production should therefore emphasise vertical expansion for although crop yields are already high, scope for further improvement still exists.

Despite being affected by fluctuating rainfall patterns, agriculture in Syria performed well during the period 1974/76-1982, registering an annual growth rate of 7.1 per cent. However, recently new trends have emerged. Agriculture has been affected by labour outmigration, which has led to labour shortages and high production costs. The consequences have been twofold with incentives to farmers to increase production being reduced and a decline in the profitability of operations and enterprises.

TABLE 1: INDEX NUMBERS AND ANNUAL CHANGE OF TOTAL GROSS AGRICULTURAL PRODUCTION IN THE ECWA COUNTRIES, SELECTED YEARS

Country	1975	1979	1980	1981	1982	Annual percentage changes	
						1974/76-82 (a)	1982 over 1981
Democratic Yemen	102	99	101	98	95	0.5	-3.1
Egypt	100	110	113	114	113	2.1	-1.0
Iraq	94	128	128	132	137	4.5	3.8
Jordan	83	103	141	131	141	5.6	7.6
Lebanon	94	105	131	110	128	6.3	16.4
Saudi Arabia	105	135	136	141	166	7.3	17.7
Syria	96	110	152	151	156	7.1	3.3
Yemen	108	101	102	99	97	-0.2	-2.0
ECWA (including Egypt)	99	112	123	123	126	3.7	2.4
ECWA (excluding Egypt)	99	115	132	131	138	5.1	5.3

SOURCE: FAD, Interlinked Computer System (ICS) printouts of production index numbers, November 1983, (unpublished).

(a) Exponential trend



The physical index of gross agricultural productions in Jordan increased by 5.6 per cent per annum during the 1974/76-1982 period. However, agricultural growth in Jordan has recently been severely affected by fluctuating production trends. Besides unfavourable environmental conditions which have played a major role in retarding agricultural growth, the shortage and high costs of labour and poorly developed agricultural services are also important contributory factors with the latter affecting the small farmers much more adversely.

Despite being endowed with both adequate land and water resources and the financial means required for development, the pace of agricultural expansion in Iraq has been rather slow. Despite the investment priority given to the extension of irrigation networks, land reclamation projects and to the increased use of fertilizers, improved seeds and mechanization during the 1974/76-1982 period, agricultural output did not rise to expected levels. The most serious problem facing agriculture in the country remains salinity in the soil due to inadequate field drainage systems. The country also faces a labour shortage while high labour costs, in the absence of adequate mechanization, drives much land out of production. Indeed mechanization of agriculture in Iraq must be seen as an appropriate means to increase food and agricultural production. By making farming more attractive it could play a vital role in reducing the drift from rural to urban areas.

In contrast to the above-mentioned countries, agricultural output in Saudi Arabia increased significantly and registered 7.3 per cent annual growth during the 1974/76-1982 period. This was made possible by the availability of free land, subsidies, interest free loans, the introduction of modern technology and infrastructural development. Despite significant growth in agricultural production, the country is still far from being totally self-sufficient. The productivity of some crops remains low and irrigation efficiency and management need to be further improved. As a result Saudi Arabia continues to import significant amounts of its food requirements. Nevertheless, agriculture offers considerable scope for diversifying the country's economic base thereby reducing the present overdependence on food imports.

In recent years the structure and rate of growth of Lebanese agriculture suffered a serious setback because of the devastation brought by a decade of civil war. Small farmers who constitute the bulk of the farming population were severely affected by the decline in agricultural services which became increasingly inefficient as the war progressed, and, in some cases, even ceased to operate on the ground. Today a fresh approach is required to reconstruct Lebanese agriculture which would take into account the new conditions that have emerged.

In Yemen, agricultural growth during the 1974/76-1982 period declined by 0.2 per cent per annum. This trend was to a certain extent influenced by misallocation of resources, an overabundant use and exploitation of water resources, shortage and high costs of farm labour, low yields and lack of suitable production incentives. However, prevailing conditions indicate that present low yield levels could be improved in a short period of time through a package of inputs and appropriate farm management practices. In general, there is a need for increased investment in agriculture which would raise the level of self-sufficiency in food.

Agricultural growth in Democratic Yemen remained very low during recent years and declined further in 1982. Certain major factors which were responsible for this low growth rate are the low level of crop yields, fluctuations in production, lack of adequate feed supply, shortages of trained manpower at all levels and the incongruity between the price structure and production costs.

Gross agricultural production in the region grew by 2.4 per cent in 1982 - Table 1. In general, unfavourable climatic conditions affected agricultural production in many parts of the ECWA region in 1982. Dry weather resulted in a decrease in the planting of winter cereals and in reduced pasture yields in the northern part of the region comprising Syria, Iraq, Jordan and Lebanon. On the other hand, excessive rains and devastating floods decimated flocks and damaged winter crops and irrigation networks in Democratic Yemen. In all other countries crop and livestock conditions were normal with the exception of the coastal area of Mersa Matrouh province in Egypt where the population and livestock suffered from serious drought.

In a number of countries, particularly in Lebanon and Iraq, the whole realm of agricultural production was seriously affected by natural disasters and conditions of war, which made outside assistance necessary to meet emergency food needs. In 1982 about 50,000 tons of food grains and other food items were made available to six countries of West Asia under the World Food Programme. These were Democratic Yemen, Egypt, Jordan, Lebanon, Syria and Yemen, where over one million people were affected by such disasters.

In 1982 agricultural production in the ECWA countries also suffered from adverse economic conditions caused by the world recession and the oil glut. Reduced availability of capital resources seriously affected agricultural and farm investment and led to a decrease in farm price supports and subsidies on inputs.

### Crop production

Crop production accounts for two-thirds of total agricultural production in the ECWA region. The growth of crop production in 1982 was merely 0.8 per cent over that of 1981. Reduced cereals harvests were compensated to some extent, by good crops of fruits, irrigated vegetables and sugar crops - Table 2.

Despite significant advances in the introduction of improved wheat varieties, the level of productivity remains low in the region, especially in those countries where wheat is predominantly cultivated in rainfed areas, for example, in Jordan, Iraq, Syria and Yemen. Unfavourable weather conditions in the region seriously affected the output of the 1982 wheat crop, which amounted to 5 million tons, 8 per cent less than the 1981 harvest. Wheat production declined in all major wheat producing countries of the region, with the exception of Egypt and Saudi Arabia. In Syria due to poor weather conditions, wheat output decreased to 1.55 million tons, 25 per cent less than the previous year. Drought resulted in a partial failure of the wheat crop in Jordan and production remained constant at 52,000 tons. Saudi Arabia, on the other hand, doubled its output during the 1981-1982 period and, by producing 400,000 tons of wheat, became a leading wheat producer in the region. This was achieved through the intensive use of improved seeds and agricultural machinery, government subsidies and loans to farmers and a considerable shift away from millet and sorghum to wheat. The rise in Egypt's wheat production was a modest 4.1 per cent and totalled 79,000 tons.

The output of coarse grain production for the region as a whole also declined. Between 1981 and 1982 production fell by 20.3 per cent, from 7.2 million tons in 1981 to 5.7 million tons in 1982. The largest drop among coarse grains was in barley (35.6 per cent) and maize (16.6 per cent), while output of sorghum and millet also declined by 4.5 and 12.6 per cent respectively. Syria was almost totally responsible for the sharp decline in the region's barley crop. The decline in barley yield was brought about by a serious drought and the low procurement price announced for the 1982 crop. The decline in the regional output of maize was mainly due to a reduced harvest in Egypt from 3.3 million tons in 1981 to 2.7 million tons in 1982.

TABLE 2: GROSS PRODUCTION OF FOOD AND NON-FOOD CROPS IN THE ECWA REGION

(Thousand metric tons (percentage))

Item	1974/76	1979	1980	1981	1982
Index of total foodscrops	100	113	124	124	128
Cereals	13,963	13,758	15,818	15,199	13,459
Pulses	705	560	674	594	565
Vegetables	11,639	13,337	14,466	15,047	15,566
Potatoes	1,075	1,601	1,892	1,916	1,766
Fruits	5,000	6,027	6,025	6,026	6,314
Olives	297	235	532	258	593
Index of total non-food Crops	100	110	116	112	110
Cotton	1,579	1,657	1,762	1,706	1,662
Tobacco	36	37	42	39	41
Index of total crop production	100	109	121	118	119

SOURCE: FAO, ICS Printouts of Production Index Numbers, November 1983, (unpublished).

Note: For details see appendix I, Table 2-7.

The regional output of paddy rice amounted to 2.69 million tons, 8 per cent higher than the 2.49 million tons recorded in 1981. Egypt, which produces more than 90 per cent of the region's paddy rice, contributed to the overall regional increase because of the expansion of the area harvested, which went up by 28,000 ha.

Total production of pulses in the region declined by 4.9 per cent from 594,000 tons in 1981 to 565,000 tons in 1982. Broad beans output, which stood at 232,000 tons, increased by 14,000 tons mainly due to a good harvest in Egypt. Production of lentils, which stood at 78,000 tons, also decreased by 8,000 tons as a result of a poor harvest of 53,000 tons in Syria.

Sugar-cane production (8,840,000) tons was up by 58,000 tons due to increased output in Iraq, the second main producer. Output of sugar cane in Egypt (860,000 tons) and the Yemen Arab Republic (5,000 tons) remained relatively unchanged. Regional production of sugar beets (863,000 tons) was also up by 76,000 tons. This was due to a 12 per cent rise in sugar beet production to 564,000 tons in Syria made possible by an increase in yields.

Vegetable production in the region expanded by 3.4 per cent in 1982 reaching 15.6 million tons. This rise was attributed to increased yields and an expansion in acreage which affected all vegetable crops. Significant increases in output were recorded for tomatoe (4.3 million tons), watermelons (3.4 million tons), onions (1 million tons) and cucumbers (905,000 tons). The increase in tomato and cucumber production was made possible by the introduction of greenhouses.

1982 was also a good year for fruit production in the region where total output reached the level of 6.3 million tons, up 4.8 per cent over 1981. Regional production of citrus products (1.73 million tons) accounts for almost 28 per cent of total fruit production. In the year under review, the share of Egypt, Lebanon and Iraq in total regional production of citrus fruits was 60, 18 and 11 per cent respectively. Production of dates, which accounts for 24 per cent of regional fruit output, reached 1.53 million tons in 1982, 7.1 per cent higher than in 1981. Grape production (1.44 million tons), accounting for 23 per cent of total fruit production, was 1.2 per cent higher than in 1981.

The production of olives in the region more than doubled to 593,000 tons in 1982. This increase was largely due to a bumper harvest of 460,000 tons in Syria, the major olive producer in the ECWA region. Syrian olive production accounts for more than 77 per cent of total regional output of olives. Indeed during the past decade the area under olive cultivation in Syria has increased considerably as a result of government incentives to farmers to increase plantings. In 1982 olive production rose in all the main producing countries such as Lebanon, Jordan and Iraq where output reached 75,000 tons, 40,000 tons and 12,000 tons respectively. However, rapid growth of olive production in the region has recently been affected by a steep rise in the cost of production due to high expenditures and shortages of labour. In some countries of the region harvesting costs currently constitute about 40 per cent of total crop value.

#### Review of the olive crop in Syria

Olives are an important crop in Syria. They are both a valuable source of vegetable oil and are consumed as a preserved fruit. Annual production fluctuates between 250,000 - 400,000 tons and the major producing areas are Aleppo, Idleb, Tartous and Lattakia. At present olive acreage is under net expansion with about 1 million trees being planted each year thanks to the establishment of a major nursery programme aimed at providing low cost planting stock to growers to encourage increased plantings. However, for a number of reasons, including lack of modern skills among farmers and rising production costs, government efforts have not borne fruit. Since 1980, greater efforts have been exerted to increase the plantation acreage to improve yields and harvesting methods. Mechanical harvesting has been introduced, but is still in its early stage of operation. Estimates show

that production of the olive crop in 80 per cent of the planted area could be mechanized thereby reducing production costs and leading to increased profitability. It is estimated that the production of traditional olive groves could be increased by 30-40 per cent through the application of modern production techniques.

Regional tobacco production amounted to 41,000 tons, 5.1 per cent higher than in 1981, mainly on account of increased production in Syria. Tobacco production in Iraq, Lebanon, Jordan and Yemen remained relatively unchanged.

World seed cotton production in 1982 was nearly 44.3 million tons to which the ECWA countries contributed 1.66 million tons, or 3.8 per cent. The region's seed cotton production is concentrated in Egypt (1.2 million tons) and Syria (422,000 tons). Output of seed cotton in 1982 stagnated in some countries and declined by 9.5 per cent in Egypt due to the reduced area harvested which decreased by 47,000 hectares. On the other hand, the 15 per cent increase in the yield of seed cotton in Syria largely contributed to the increase in cotton output from 356,000 tons in 1981 to 422,000 tons in 1982.

#### Review of cotton crop in Syria

Cotton is the most important export crop in Syria and the major source of foreign exchange. Growing labour shortages and increasing competition from other irrigated crops make mechanization and improved yields a necessity. Moves are being made towards mechanization so as to introduce greater rationalization in production. In the 1983/84 crop season 24,000 hectares were to be planted by machine as a first step towards complete mechanization. It is estimated that mechanization will reduce the cost of production by 30 Syrian piasters per kg.

As mechanization of cotton requires major varietal improvement to accommodate the needs of mechanized picking and to increase the yield potential, research is being done to improve seed strains and farming methods. There are 8 experimental stations in different areas working on cotton improvement and new strains have been developed, which are resistant to certain diseases.

#### Livestock production

At the regional level, the volume of livestock and dairy production increased throughout the past several years and in 1982 its physical index stood at 140 (1974/1976 = 100), the highest level ever. The development of livestock and dairy production has been steady during the past years, averaging 5.2 per cent during the 1974/76-1982 period - Table 3.

In 1982, high increases in total livestock output occurred in Iraq, Syria, Saudi Arabia and Lebanon. In Syria, despite continued problems in the poultry sector\*, a 9.6 per cent increase in total livestock production was achieved - Appendix I, Table 8.

The poultry sector in the ECWA region continues to develop rapidly. During the 1974/76-1982 period regional poultry production grew 8 per cent per annum and in 1982 regional production reached 397,000 tons up 14 per cent from the previous year. In 1982 poultry meat constituted 37 per cent of total regional meat production. In the near future the region is expected to become self-sufficient in poultry products. Despite the implementation of a number of projects, this sector continues to face a number of problems, including inadequate management and marketing techniques, non availability of feed and, in some countries, the pricing system remains unsteady. As regards regional production of eggs, production in this sector increased by 85 per cent, from 172,000 in 1974/76 to 319,000 in 1982.

The significant rise in fresh milk production for 1982 was largely attributable to the increased activities of dairy enterprises which were recently established in the region. Thanks to a larger number of milking animals, total regional fresh milk production increased to 5.5 million tons in 1982, a 4.3 per cent increase over 1981.

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\* The poultry sector in Syria continues to face problems, particularly in the areas of feed availability and marketing infrastructure. Poultry production is also seriously affected by increased costs of production resulting from increases in the price of corn, soybean meal and other feed ingredients which have not been accompanied by a proportionate increase in market prices.

TABLE 3. LIVESTOCK AND DAIRY PRODUCTION IN THE ECWA REGION FOR SELECTED YEARS

(Thousand tons, Percentage)

Commodity	1974/76	1979	1980	1981	1982	Annual percentage change	
						1974/76-82	1982/1981
Fresh milk	3,997	4,657	4,861	5,238	5,465	3.9	4.3
Indigenous red meat(a)	531	616	623	648	677	3.1	4.5
Beef and buffalo meat	308	349	351	375	380	2.6	1.3
Mutton and goat meat	223	267	272	273	297	3.6	8.8
Indigenous poultry meat	214	278	314	348	397	8.0	4.1
Eggs	172	262	292	305	319	8.0	4.6
Index of livestock and dairy production	100	120	126	133	140	5.2	5.3

Source: FAD, I.C.S. printouts of agricultural production, November 1983, (unpublished)

(a) Excluding offals



In 1982 red meat production increased moderately to 677,000 tons, a 4.5 per cent increase over the previous year. Beef and buffalo meat made up 56 per cent and mutton and goat meat 44 per cent of total production. The increase in mutton and goat meat was significantly higher than that of beef and buffalo meat being 8.8 per cent against 2.3 per cent. There is still much scope for sheep production in the region and ample opportunities exist for establishing breeding and modern fattening enterprises.

Despite the improved performance of the livestock sector in recent years, there is still a considerable shortfall in meeting the region's demand for such products, particularly red meat. Demand for livestock products during recent years has increased due to rapid population growth, incomes, changing dietary habits and consumption patterns. An important factor hindering the rapid growth of livestock production is the inadequate returns to owners on account of deficient marketing techniques. Improvements in marketing infrastructure would certainly contribute to a more rapid growth and to better quality of livestock products in the ECWA countries. Except for Egypt, the acute shortage of trained manpower is also considered a serious obstacle to livestock development in the region. Manpower shortages also hamper institutional development which are currently inadequate for implementing an expansion of the livestock sector.

Furthermore, an inadequate and fragmented infrastructure has led to management and organizational problems. The absence of development planning and monitoring both at the national and regional levels is a further constraint against livestock development.

## II. AGRICULTURAL TRADE

The above analysis leads one to the following conclusions. Firstly, production has not kept pace with the increasing demand for food in the ECWA region. Secondly, since 1981 the slow growth rate registered in agriculture sector, together with the growing demand generated by a high population growth and rising per capita income, have widened the deficit in agricultural trade. The deficit widened from US\$ 11.7 billion in 1980 to US\$ 13.9 billion in 1981, a 19 per cent rise of US\$ 2.2 billion. This was largely due to higher increase in value of total agricultural imports which registered 14.4 per cent growth in 1981 against a decrease of 11.5 per cent in total agricultural exports.

TABLE 4: BALANCE OF AGRICULTURAL TRADE IN THE ECWA REGION\*,  
SELECTED YEARS

(millions of US dollars)

	1969/71	1975	1979	1980	1981
Oil-exporting countries	- 495.0	-2,174.9	- 6,421.4	- 8,287.5	- 9,254
Non oil-exporting countries	+ 123.5	-1,405.7	- 2,397.8	- 3,409.9	- 4,623
Total ECWA region	- 371.5	-3,580.5	- 8,819.3	-11,698.0	-13,878
Exports	840.9	1,275.6	1,688.4	1,902.3	1,684
Imports	-1,212.4	-4,856.1	-10,507.4	-13,600.3	-15,563

SOURCE: ECWA, computed on the basis of FAO, ICS printouts of agricultural trade, November 1982.

\* For country by country details, see Appendix I, Table 9.

Agricultural exports financed only 11 per cent of the total cost of such imports in 1981, compared to 14 per cent in 1980. In oil exporting countries, they covered 4.2 per cent of agricultural imports while in non-oil exporting countries the corresponding figure was 21.6 per cent. Thus agricultural exports are still unable to cover the cost of food imports.

Rising agricultural imports are placing an increasing burden on the economies of the ECWA countries, especially the non oil-exporting nations. In 1981 in the latter the greater part of agricultural imports were financed from non-agricultural sources. The figure was over 99 per cent in the Yemen Arab Republic, over 96 per cent in Democratic Yemen and between 65-78 per cent in Syria, Lebanon, Jordan and Egypt. This contributed to the adverse balance - of payment problems of these countries and reduced their import capacity. The recent fall in oil prices, has also affected the import capacity of oil-exporting ECWA countries.

Almost all ECWA countries in 1981 were net importers of agricultural products. The highest agricultural trade deficit was recorded by oil exporting countries and reached US\$ 9.3 billion in 1981. In that year the deficit ranged from US\$ 4.9 billion for Saudi Arabia to US\$ 195.9 million for Bahrain. Similarly, the overall agricultural trade deficit of the non-oil exporting countries increased by about 1.2 billion over its 1980 level to reach US\$ 4.6 billion in 1981 - Table 4. Egypt experienced the largest agricultural trade deficit among the non-oil exporting countries, amounting to US\$ 2.49 billion in 1981, followed by the Yemen Arab Republic, Lebanon and Syria. The figures were US\$ 570.7 million, US\$ 516.2 million and US\$ 445.6 million respectively. The agricultural trade deficit in Jordan and the Democratic Yemen also widened by 32 per cent and 4.3 per cent respectively.

There are a number of reasons for the rising food import bills in ECWA countries. As many of the oil-based economies tried to diversify their economies from the early seventies by building up their industrial base, agriculture was relatively neglected since investment was directed towards the industrial sector. In the non oil-exporting countries the absence of rapidly expanding economies, coupled with a rising population growth, made countries like Egypt increasingly dependent on food imports.

### Exports

In 1981, total regional agricultural export earnings of US\$ 1.7 billion were US\$ 0.2 billion or 10.5 per cent lower than that of 1980. Apart from Oman, Saudi Arabia and Egypt, whose export earnings increased by 17.7, 11.5 and 7.1 per cent respectively, considerable declines were registered in the rest of the region.

Cotton lint ranked first among agricultural exports in ECWA countries, exceeding US\$ 621 million in 1981. Egypt is the leading exporter of this commodity in the ECWA region and in 1981 Egyptian exports were US\$ 471 million and amounted to 75.8 per cent of total exports. Syria ranked second and her exports of US\$ 142 million accounted for 22.8 per cent of total exports. This was followed by Democratic Yemen where exports of US\$ 7.8 million accounted for 1.3 per cent of the total. Exports of tobacco in the region remained relatively stagnant at 1980 levels, but exports of wool (raw and degreased) declined considerably - Table 5.

TABLE 5. VOLUME AND VALUE OF SELECTED NON-FOOD AGRICULTURAL EXPORTS OF THE ECWA REGION, 1969/71-1981

(Thousand metric tons, millions of US dollars)

Commodity		1969/71	1975	1979	1980	1981
Cotton lint	Vol	425.6	293.9	260.2	245.2	249.3
	V	435	641	576.7	601.6	621.6
Tobacco (unmanufactured)	Vol	9.2	8.1	7.1	10.6	9.8
	V	7.8	19.1	21.6	36.5	36
Wool (greasy and degreased)	Vol	17.1	9.7	7.9	7.1	3.2
	V	12.2	14.3	13.8	15.1	5.4

SOURCE: ECWA, computed on the basis of FAO, ICS printouts of agricultural trade, November 1982.

Note: Vol: volume; V: value

Exports earning of fruits and vegetables in the region in 1981 reached the level of US\$ 340.6 million, below the level earned in 1980. This was due to the decline in both exports volume and unit value of major horticultural crops in the region - Table 6.

### Imports

The steady rise in agricultural imports in the ECWA region since the early seventies has been necessitated by declining rates of domestic food production and increasing demand in the region. A combination of a number of positive external factors have enabled these countries to solve the problem through imports. Among these is the existence of surplus of key agricultural commodities on the world market, together with falling prices for these products and easy credit terms available for food imports. In 1981 most of the US\$ 15.6 billion in agricultural imports for the ECWA region were destined for Saudi Arabia, Egypt, Iraq and Kuwait. They accounted for 32 per cent, 21 per cent, 12 per cent and 7.8 per cent respectively of total agricultural imports.

TABLE 6. VOLUME AND VALUE OF MAJOR FOOD EXPORTS OF SELECTED COMMODITIES IN THE ECWA REGION

(Thousand metric tons, millions of US dollars)

Commodity		1969/71	1975	1979	1980	1981
Citrus-fruit	Vol	239.7	462.9	356.6	386.7	380.5
	V	26.4	82.3	76.2	101.2	108.7
Dates	Vol	321.2	280.6	193.2	209.5	183.5
	V	23.1	45.3	49.7	61.9	59.1
Apples	Vol	84.3	88	84.5	93.7	73.4
	V	8.8	19.4	34.7	42.7	31.9
Potatoes	Vol	115	79	151.8	280.5	169.0
	V	26.4	12.9	35.6	65.8	42.1
Onions	Vol	142.2	100.5	78.5	78.6	41.0
	V	17.9	20.3	19.4	21.7	13.3
Pulses	Vol	64.3	38.4	144.4	74.3	29.6
	V	10.1	14.6	45.0	37.2	17.4

SOURCE: ECWA, computed on the basis of FAO, ICS printouts of agricultural trade, November 1982.

Note: Vol: volume; V: value

ECWA countries imported more than 50 per cent of their cereal requirements in 1981. Total imports of this product in the region amounted for over 17.6 million tons valued at more than US\$ 4.4 billion. In 1981 cereals imports represented 29 per cent of the value of total regional agricultural imports.

Due to increase in both volume and unit values, the total value of the region's sugar imports also increased by 22.8 per cent in 1981 - Table 7.

The increase in per capita income coupled with rapid population growth have created a large demand for livestock products in the ECWA countries, a large proportion of which is met through imports. In 1981, the region imported 11 million head of sheep and goats and 430,000 cattle valued at US\$ 1 billion. Total meat imports - fresh, chilled and frozen - amounted to 1 million tons valued at US\$ 1.7 billion. Poultry meat amounted to US\$ 914 million of total meat imports or 54 per cent of the

total. This indicates the scope that exists for the development of local poultry industries. Regional imports of milk and dairy products in the same year were valued at US\$ 1.1 billion and egg imports of 105,574 tons at US\$ 156 million.

Feedstuff imports continued to rise considerably in 1981 and reached US\$ 230 million compared to US\$ 138 million in 1980. This is largely due to the establishment of new dairy and poultry farms in oil-exporting ECWA countries. It is evident that self-reliance in food has become a priority issue for the region. Greater investments must be made in the agricultural sector and adequate reserve stocks must be built up to reduce dependence on uncertain world markets. The oil exporting countries are beginning to pay greater attention to agriculture as a way of solving unemployment and increasing export earnings.

TABLE 7. VOLUME, UNIT VALUE AND VALUE OF MAJOR AGRICULTURAL IMPORTS OF SELECTED COMMODITIES IN THE ECWA REGION

(Thousand metric tons, millions of US dollars)

Commodity		1969/71	1975	1979	1980	1981
Wheat and wheat flour (wheat equivalent)	Vol	3,519	6,063.9	9,407.8	9,805.5	10,735.7
	UV	66.9	197.2	175.2	209.4	209.4
	V	235.5	1,196.1	16,48.7	2,053.6	2,247.6
Rice	Vol	485	530	1,415.9	1,254.2	1,362.8
	UV	160.4	522.4	494.1	561.7	600.6
	V	77.8	276.9	699.6	704.5	818.5
Sugar (raw equivalent)	Vol	782	1,005	1,604	2,232.4	2,402.8
	UV	97.6	701.9	291.1	529	603.8
	V	76.4	705.5	466.9	1,180.9	1,450.8
Meat, total (fresh chilled, frozen)	Vol	46	165.3	582	779.2	1,002.8
	UV	704.4	1,274.6	1,543.3	1,668.3	1,697.2
	V	32.5	210.7	898.2	1,300.2	1,701.9
Sheep and goats live	Vol	2,976	2,900.1	7,080.6	8,289.9	11,050.8
	UV	16.6	35.1	52.5	65.2	74.8
	V	49.4	101.7	372	540.8	826.3
Milk, total (cond., dry + fresh)	Vol	42.2	159.7	483.6	590.5	676.6

SOURCE: ECWA, computed on the basis of FAO, ICS printouts of agricultural trade, November 1982.

Note: Vol: volume; UV: unit value; V: value

## AGRICULTURAL PRODUCTION AND DEVELOPMENT IN IRAQ\*

### Area and Climate

The total area of the Republic of Iraq is 438,317 square kilometres. It is divided into four primary geographic areas: the alluvial plain which comprises about one-fifth of the country, the mountain region in the north and north-east which consists of about 90,000 square kilometres, the steppes region and the desert plateau in the west which covers about three-fifths of the country. Table 1 shows the distribution of the total area into plains, mountains and deserts.

TABLE II:1. AREA OF PLAINS, MOUNTAINS AND DESERTS IN IRAQ

	Area in sq. km.	Percentage of total area
Plains (including marshes and lakes)	132,500	30.2
Terrain lands	42,000	9.6
Mountains	92,000	21.0
Deserts	171,817	39.2
Total	438,317	100.0

SOURCE: Annual Abstract of Statistics, 1982  
(Republic of Iraq, Ministry of Planning, Central  
Statistics Organization).

Iraq's climate is considered continental and subtropical with a rainfall pattern similar to that of the Mediterranean region. It can be divided into three types. Firstly, the hot desert climate which prevails over 70 per cent of the country. Its average rainfall is low ranging between 50 and 200 millimetres per year. Secondly, the Mediterranean type which covers the mountainous area. Its rainfall ranges between 400 and 1000 millimetres per year. The third category is the transitional climate of the steppes. Temperatures here are not as extreme as

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\* Prepared by Mohsin Shaik Radhi, College of Agriculture, University of Baghdad, Iraq, and Mohammad Douglah, State Board for Training and Agricultural Extension, Ministry of Agriculture and Agrarian Reform.

those in the desert and average rainfall ranges between 200 and 400 millimetres.

Land and Water Resources

Iraq has more water available for agriculture than most Middle Eastern countries and greater and more efficient use of these resources would give Iraq the potential to increase and develop farm output substantially. Two main regions, comprising less than one-fifth of Iraq's area, encompass nearly all of the country's farm land. The upper plains and mountain valleys in the north and north-east rely on rainfall, which is more dependable at the high elevations and becomes less so in the south away from the mountains. Most of the grain crops are grown in the rainfed region, where they are subject to sharp fluctuations in rainfall patterns. Irrigation in this area has expanded and wells, pumps and dams have increased the availability of water for cropping. However, much of the rainfed area remain dependent on rainfall.

The total available land for agricultural purposes in the rainfed area is estimated to be 9.4 million donums.\* Of this, 1.4 million donums are situated in an area considered to be assured of sufficient rainfall (more than 450 mm per year); 2.5 million donums are in areas of medium rainfall (450-350 mm per year); and 5.5 million donums have insufficient rainfall (less than 350 mm per year)(1). It is estimated that the total area of land that will be available for cultivation in the rainfed area in 1985 will be as follows:

In areas of assured rainfall	1.400 million donums
In areas of medium rainfall	1.667 million donums
In areas with insufficient rainfall	3.667 million donums
Total	6.734 million donums.

The other major area of cultivation is in the lowland valleys of the Euphrates and Tigris rivers where rainfall is extremely light, and cropping depends on irrigation. Discharge by the rivers occurs largely between March and May which is too late for winter crops and too early for summer crops. In common with other large rivers, the Tigris and Euphrates carry large

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\* One donum = 2,500 sq. m.

(1) Summary of the working paper on New Horizons and Ways of Developing the Agricultural Sector, 1981-1985 (Ministry of Agriculture and Agrarian Reform, Ministry of Irrigation, Baghdad, 1980). (Hereafter referred to as Developing the Agricultural Sector).



amounts of silt downstream each year. Part of the silt has been deposited in river channels, man-made canals, and on the land itself, the net effect of which has hampered or altered the drainage system and made irrigation more difficult. However, the present government has made huge investments for multi-purpose dam projects which will irrigate new lands, reclaim old ones, provide flood prevention measures, improve the drainage system and generate electricity. Several of these large dams are presently under construction and will be completed at the end of the 1981-1985 or the 1985-1990 development plans. They include the Mosul dam with a capacity of 11.11 billion cubic metres; the Bekhma dam with a capacity of 11 billion cubic metres; the Himreen dam with a capacity of 3.95 billion cubic metres; and the Haditha dam with a capacity of 6.4 billion cubic metres. By 1985, 34 billion cubic metres of water will be available for irrigation and other purposes thanks to the storage capacities of existing dams and those to be completed, as well as the natural flow of water in rivers.

The expansion of irrigation has contributed to serious drainage problems. The additional water combined with the shallow gradient of the terrain from above Baghdad to the Arabian gulf raised the water table and brought salts close to the surface affecting plant growth. It is estimated that as much as 64 per cent of irrigated areas have salinity problems and that 20 to 30 per cent of the irrigated lands have been abandoned over the years on this count. Salinity has two main causes: little regulation over water use, and insufficient drainage facilities, particularly those connecting fields to large drainage networks. A master plan for drainage and land reclamation was drawn up in the seventies and by 1980 about 4 million donums of land had been provided with either main, connecting or field drainage systems. As for land reclamation, it is anticipated that about 2.5 million donums will be reclaimed by 1985. In the irrigated areas of central and southern Iraq, the total cultivable area is estimated to be 8.593 million donums. Of this, 7.797 million donums are devoted to crops and the remainder to orchards.(1)

Studies conducted by the State Organization for Soil Reclamation indicate that the total area of land currently available for cultivation in Iraq is about 20 million donums. Of these, 2.519 million donums are considered good lands, 3.233 million donums are considered fair, and the rest are of poor quality. However, as indicated above, the entire area cannot be actually utilized either at present or in the near future, on account of water shortages.

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(1) Ibid., p. 28.

### Land Tenure and Agrarian Reform

Land rights in Iraq have evolved over many centuries, incorporating elements of different cultures and countries. The Ottoman Land Code of 1858 attempted to bring order by establishing categories of land and calling for surveys and registration of holdings. By World War I only limited registration had been accomplished, and land titles were insecure particularly those under tribal tenure whereby the state retained ownership of the land, but tribal members retained usufructuary rights over the land.

By the early 1930's large landowners became interested in more secure titles because a period of agricultural expansion was under way. In the north, merchants from urban areas were investing in land development and in the south tribal leaders were installing pumps for irrigation.(1) This resulted in increases in grain production and the export of wheat and barley. Under a law passed in 1932, a number of tribal leaders received title to the land being worked by community members. The effect was to increase the number of sharecroppers and tenants. Another law in 1933 prohibited a sharecropper from leaving if he was indebted to the landholder. The law thus effectively bound tenants to the land since few of them were free of debts.

By 1958 more than two-thirds of the cultivated land was concentrated in 2 per cent of the holdings, while, at the other extreme 86 per cent of the holdings accounted for about 10 per cent of the land. The 2 per cent holdings in the first category were in excess of 1,000 donums. Of these, 19 owners had properties of 50,000 donums each and five owners had estates over 100,000 donums. Such a land ownership pattern provided little incentive to improve the productivity of the land. Most farming was done by sharecroppers and tenants who received only a small portion of the crop. The shares varied according to a number of factors including region, type of irrigation, the amount of input supplied by the owner but the owners were always in a position to extract the maximum from any increase in productivity.

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(1) Iraq, A country Study, (Washington D.C., Foreign Area Studies, American University, 1979), p. 153.

Soon after the Revolution of July 14, 1958, the Agrarian Reform Law No. 30 was enacted in September 1958 which tried to provide some form of redress to the system. Its objectives were:(1)

1. The abolition of the feudal system of land tenure and elimination of the political power of large landowners.
2. Improvement in the living standard of the peasants and provisions to raise their social status.
3. Raising the level of agricultural production and increasing its contribution to the national income.

The main features of the law were:

1. The imposition of a ceiling on land ownership and the expropriation of privately-owned land above the ceiling set at 1,000 donums of irrigated land and 2,000 donums of rainfed land.
2. The distribution of land to landless peasants in holdings of 30-60 donums in irrigated areas and 60-120 donums in rainfed areas.
3. The formation of co-operative societies with compulsory membership for all beneficiaries of land distribution.
4. Regulation of tenancy relations between landowners and tenants on lands not subject to expropriation.

Land Reform Law No. 30 was able to achieve its political aim of breaking the power of large landowners and tribal chiefs, however, its economic and social consequences were rather mixed. Loopholes in the law resulted in only 3,621,774 donums of land being distributed to 66,092 families. This represented about 30 per cent of the 12 million donums of expropriated and state land available for distribution. The remaining 70 per cent were mostly leased by the Ministry of Agrarian Reform on temporary contracts to 225,000 families. The law was amended several times and was eventually superceded by the more comprehensive Agrarian Reform Law No. 117 of 1970. This law, which was socialistically oriented, differed from the law of 1958 in that it:

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(1) A.S. Alwan, "The Role of Agrarian Reform in the Reconstruction and Development of Iraqi Agriculture", The Arab Economist, Baghdad, February 1978, pp. 19-20.

1. Reduced the ceiling on the size of ownership and fixed it according to such criteria as soil fertility, type of crops grown and availability of water.
2. Abolished the compensation of requisitioned land and distributed land to peasants free of charge.
3. Abolished the right of landowners to select the land to be retained within the ceiling of ownership.
4. Extended land distribution to Arab citizens who met the criteria for entitlement.

The law contained provisions prohibiting private property rights and encouraging the establishment of state and collective farms as well as agricultural co-operatives. In 1982 there were 1,976 agricultural co-operatives in the country with 394,755 members. Of the total number, 1,877 were local co-operatives, 17 were collective farms and 82 were specialized co-operatives.

Table 2 presents the distribution of landholdings in Iraq. It shows that two-thirds of the arable land is distributed in medium-size holdings ranging between 10 and 120 donums and is owned by close to half a million individuals representing 72 per cent of all landowners. Large holdings of more than 300 donums represent 13.7 per cent of the total area and they are located mostly in the rainfed northern region. It is clear from data presented in table 2 that land is equitably distributed in Iraq.

#### Population and Labour Force

Iraq's total population in 1947 was 4.81 million people, of whom 64 per cent were considered rural. In 1957 the population increased to 6.29 million and the rural population remained at a high 61.2 per cent. However, since then the rural to urban ratio began to change significantly. The rural population in 1965 decreased to 48.9 per cent and to 36.3 per cent in 1977 and it was estimated to be 33.7 per cent in 1980 (Table 3).

TABLE II: 2. DISTRIBUTION OF LAND HOLDINGS IN IRAQ, 1982

Size of holding	Area of land (1,000 (Donums)	Percentage of total area	No. of holdings	Percentage of total holdings
Less than 10 donums	692	2.80	157,050	23
10-119 donums	16,400	66.47	492,300	72
120-130 donums	4,100	16.90	28,300	04
More than 300 donums	3,400	13.70	5,214	01
Total	24,590	99.87	682,864	100

SOURCE: Central Report of the Ninth Regional Conference, Arab Bath Socialist Party, June 1982, (Baghdad, Iraq, January 1983), p. 138.

TABLE II: 3. THE URBAN-RURAL DISTRIBUTION OF THE TOTAL POPULATION IN IRAQ 1947-1980

(in thousands)

Year	Total population	Urban		Rural	
		Number	Percentage	Number	Percentage
1947(1)	4,816	1,733	33.0	3,083	66
1957(1)	6,298	2,445	38.8	3,853	61
1965(2)	8,047	4,112	51.1	3,935	48.9
1977(1)	12,000	7,646	63.7	4,354	36
1980(2)	13,238	8,783	66.3	4,455	33.7

SOURCES:

1. Census data for 1947, 57 and 77.
2. Annual Statistical Data, 1981.

Over the past thirty years the urban population grew at an annual rate of 6 per cent in contrast to the rural population which expanded at a rate of 1 per cent. This is mainly due to the rural exodus to urban areas because of employment opportunities and higher income levels in the non-agricultural sector. Other causes of migration are the relative difficulty of agricultural work and the higher risks commonly associated with

agricultural investments, because of the high salinity in the soil.

Migration from rural to urban areas has been a common feature of expanding economies and when it takes place at a fast rate, its effects have been negative. An imbalance is created in the supply and demand of agricultural products because of the inability of existing technology to offset the manpower loss in rural areas. Data presented in Table 4 show that while the work-force in the building and construction, service and industrial sectors increased by 313, 146 and 56 per cent respectively in 1977 compared to 1975, the absolute number and percentage of the agricultural work-force declined by 43 per cent for the same period. It numbered 1,654,000 in 1975 and represented 56 per cent of the total labour force. By 1977 it had declined to 941,000 and constituted 31 per cent of the total work-force.

TABLE II: 4. ECONOMICALLY ACTIVE POPULATION IN DIFFERENT SECTORS 1975-1977

(in thousands)

Sector	1975(1)		1977(2)		Per cent change
	No.	%	No.	%	
Agriculture	1,654	56.2	941	30.3	- 43.1
Industry	220	7.5	343	11.1	55.9
Building and construction	77	2.6	318	10.3	313.0
Transportation and communication	170	5.8	176	5.7	3.5
Service	520	17.7	1,280	41.3	146.2
Others	300	10.2	44	1.4	- 85.3
Total	2,941	100	3,102	100	

SOURCES:

1. Agricultural Economic Policies in Iraq (A study conducted by a special committee).
2. Census data for 1977.

Table II.5 PER CENT CONTRIBUTION OF AGRICULTURE TO GDP (1970-1980)

Year	In constant prices			In current prices			Agricultural GDP (Million dinars)			
	With oil Percentage inc. oil	Percentage exc. oil	Percentage inc. oil	Percentage exc. oil	Percentage inc. oil	Percentage exc. oil	Current prices		Constant prices (1975)	
							value	Percentage	value	Percentage
1970	11	25	15	23						
1971	10	25	14	22						
1972	14	28	18	25						
1973	9	22	12	20						
1974	9	20	7	18						
1975	7	15	7	15						
Average	10	22.5	12.2	20.5	278.5	20.3	338.7	1.1		
1976	8	17	8	17						
1977	6	14	7	15						
1978	6	15	8	17						
1979	5	10	6	12						
1980	6	12	6	16						
Average	6.2	13.6	7.0	15.4	572.3	20.4	380.2	5.7		
Overall average	8.3	18.5	9.8	18.2	412.1	20.3	357.6	3.4		

SOURCE: The Domestic Product and the National Income in Iraq, 1970-1979 and 1980, Central Statistical Organization.

It should be noted that the data presented in table 4 include those who are retired but work, housewives who work part-time and students and other youth who are below 15 years of age and work. In the agricultural sector women constituted 38 per cent of the total agricultural labour force and when they are excluded, the agricultural labour force is reduced to only 24 per cent of the total. When the age factor is also considered, since a good number of workers in agriculture are in the older age groups,\* it becomes clear that, in Iraq, unlike many other developing countries, agriculture faces a labour shortage. This points to the need for introducing rural development strategies and agricultural policies in ways that may result in a relative decline in rural migration as well as raising agricultural labour productivity and the productivity of land utilized for agricultural purposes.

#### Agriculture's Contribution to the National Economy

Data presented in table 5 show the contribution of the agricultural sector to GDP, including and excluding oil revenues, and in constant and current prices, for the periods 1970-1975 and 1976-1980. Without oil revenues and in constant prices, the average contribution of the agricultural sector to GDP was 22.5 per cent for the period 1970-1975. When oil revenues are added, the percentage is reduced to 10 per cent. In current prices, the averages were 20.2 and 12.2 per cent, for the same period. During 1976-1980, the average contributions of the agricultural sector to the GDP in constant prices were 13.6 excluding oil revenue and 6.2 per cent including oil revenues. In current prices the averages were 15.4 and 7 per cent. A still better picture of agriculture's contribution to the national economy is acquired when the agricultural GDP is considered for the two developmental periods 1970-1975 and 1975-1980. In the first period, the average value of the agricultural GDP was 338.7 million dinars in constant prices; in the second period, it rose to 380.2 million dinars. This represents a difference of only 41.5 million dinars over the two periods. In current prices the average value of the agricultural GDP actually doubled over the two five-year periods from 278.5 million dinars during 1970-1975 to 572.3 million dinars during 1975-1980.

#### Agricultural Production

Iraq's natural resources and climatic conditions enable it to produce a variety of cereal crops, oil seeds, tubers and bulbs, legumes, industrial crops and vegetables, in addition to a number of deciduous and citrus fruits, and dates. The most

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\*Several recent studies have revealed the average age of farm operators to be around 50 years.



important cereal crop is wheat since it usually accounts for more than half the area planted in winter crops. Other important cereals are barley, rice and maize. Among oil seeds, sesame, sunflower and linseed are the important crops, while dry broad beans, chick peas, lentils and green gram are the primary legumes grown. Potatoes have become an important root crop in addition to dry onions, while cotton, sugar cane and tobacco are the leading industrial crops. Vegetables rank number two in importance after cereals, in terms of total area planted. They have gained tremendous popularity during the past few years, mainly because of their remunerative prices.

In the area of animal resources, poultry, both in egg and broiler production, has made significant advances, especially during the second half of the seventies.

### Plant Production

#### Cereals:

Cereal crops account for 85 per cent of the cultivated area in the country and are an important source of carbohydrates in the Iraqi diet. Therefore, changes in their production patterns have important consequences on the entire agricultural production process and the lives of those working in agriculture.

Wheat and barley are the principle winter crops grown in the rainfed area of the north, a region affected by seasonal fluctuation in rainfall. Rice and maize are grown in the irrigated areas of the centre and south which are faced with soil fertility and salinity problems.

#### Wheat

Data presented in Table 6 show that areas planted in wheat during the period 1975-1982 have fluctuated a great deal from year to year. In 1978, 6.34 million donums were planted, almost twice as much as were planted the year before. In 1982, the area devoted to wheat was 4.7 million donums. Total production varied widely between 1975-1982 the highest production figure was 1.31 million tons in 1976 whereas the lowest production figure was recorded in 1979 with only about 685,000 tons.

Fluctuation in total areas and production were reflected in average yields. The highest yield was achieved in 1976 with 219 kg. per donum and the lowest in 1979 with 139 kg per donum. Average yields of wheat in Iraq are considered extremely low when compared with those of other countries. For example, Holland achieved an average yield of 1,581 kg per donum during the period 1978-1980. In Egypt, the average yield is 626 kg per

donum and in Turkey it is 408 kg per donum. Only Jordan's average yield is lower than Iraq's: in 1975 it was 147 kg per donum while in Iraq it was 150 kg. per donum.(1)

TABLE II: 6 TOTAL AREA PLANTED, TOTAL PRODUCTION AND YIELD FOR WHEAT 1975-1982

Year	Total area (in 100 donums)	Total production (in 100 tons)	Yield (kg. per donum)
1975(1)	56,306	8,454	150
1976(1)	59,972	13,124	219
1977(1)	34,304	6,957	203
1978(2)	63,640	9,098	143
1979(2)	49,293	6,848	139
1980(2)	56,549	9,756	173
1981(2)	48,469	9,028	186
1982(2)	47,277	9,651	204

SOURCES:

1. The Iraqi Economy 1970-77 (Ministry of Planning, The Economic Office).
2. Annual Abstract of Statistics, 1982 (Republic of Iraq, Ministry of Planning, Central Statistical Organization), p.68.

The fluctuations in total production and average yields reflect the level of technology employed in the production process, as well as the effect of climatic factors and agricultural policies, particularly pricing policies. Most of the area planted in wheat is situated in the rainfed area of the north, and only a small portion of it is assured of sufficient rainfall each year. In addition, present prices of wheat do not encourage farmers to consider it a competitive crop, hence they do not respond positively to the application of improved practices in its production.

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(1) The Iraqi Economy 1970-1977, Ministry of Planning, The Economic Office), pp. 260-262.

Barley

Barley which is also grown mainly in the rainfed area, assumes second position among cereal crops, in terms of area planted and total production. It has gained considerable importance during the past few years because of the increased demand on feed.

TABLE II: 7 TOTAL AREA PLANTED, TOTAL PRODUCTION AND YIELD FOR BARLEY 1975-1982

Year	Total area (in 100 donums)	Total production (in 100 tons)	Yield (kg per donum)
1975(1)	22,692	4,370	193
1976(1)	23,028	5,793	252
1977(1)	21,435	4,577	214
1978(2)	31,018	6,172	199
1979(2)	34,902	5,714	162
1980(2)	36,588	6,124	187
1981(2)	41,947	9,247	221
1982(2)	46,654	9,020	193

## SOURCES:

1. The Iraqi Economy, 1970-77.
2. Annual Abstract of Statistics, 1982.

Except for 1977, the total area devoted to barley has steadily increased since 1975. In 1982, there were almost 4.7 million donums planted in barley, more than double the 1975 area, which was 2.27 million donums (Table 7). Total production in 1982 was also more than double that of 1975, 907,000 tons compared to 437,000 tons. However, the yield, like wheat, fluctuated from year to year. The highest yield was achieved in 1976 when it reached 252 kg/donum and the lowest was in 1979, when it registered a mere 162 kg/donum. On the whole, these average yields are considered low compared with those of other countries (i.e. German Democratic Republic 1,056 kg/donum and the world average 408 kg/donum).

It should be pointed out that barley's average yields in Iraq are somewhat better than those for wheat. This is largely due to its relative resistance to salinity compared to wheat which is considered sensitive to it.

Rice

Rice is one of the most important summer crops and it is grown mainly in the mid and southern regions in irrigated areas. The area devoted to the crop and its total production have remained fairly stable since 1976, unlike the sharp fluctuations characterizing the production of wheat and barley. Limited water availability during the summer is the main factor determining the area that can be planted in rice. 1975 was an exceptional year in terms of total production and yield, (Table II: 8).

TABLE II: 8 TOTAL AREA PLANTED, TOTAL PRODUCTION AND YIELD FOR PADDY 1975-1982

Year	Total area (in 100 donums)	Total production (in 100 tons)	Yield (kg. per donum)
1975	1,195	605	507
1976	2,096	1,633	779
1977	2,039	1,192	785
1978	2,353	1,720	731
1979	2,533	1,578	623
1980	2,394	1,669	697
1981	2,290	1,622	708
1982	2,450	1,634	667

SOURCE: Ibid.

In 1977 almost 200,000 tons of paddy were produced from 203,900 donums. Yields were 785 kg. per donum, which is higher than the world's average yield of 610 kg. per donum.

Maize

Until recently, maize was not considered a common crop in Iraq. However, it has gradually gained in importance since the mid-seventies because of the flourishing poultry industry and government support in the provision of inputs and extension services. The total area planted in maize peaked in 1978 when it reached more than 158,000 donums. From 1978 onwards the area planted began to decline and in 1982 reached 79,000 donums with a total production of 28,000 tons, almost a third of the 1977 figure (Table 9). Yields have also declined sharply reaching a high of 792 kg. per donum in 1976 and dropping more than fifty per cent in 1982 to 355 kg. per donum. Several causes of this decline have been put forward, among them the problem of salinity in the soil, low seed germination and insect infestations. The problem requires close study so that solutions can be found and extension services organized to remedy the situation.

TABLE II: 9. TOTAL AREA PLANTED, TOTAL PRODUCTION AND YIELD FOR MAIZE 1975-1982

Year	Total area	Total production	Yield (kg. per donum)
1975	37,800	23,400	620
1976	69,400	55,000	792
1977	126,300	82,200	651
1978	158,400	74,800	472
1979	128,300	58,600	457
1980	131,200	59,600	454
1981	104,200	39,300	377
1982	79,400	28,200	355

SOURCE: Ibid.

### Vegetables

Vegetable production is increasingly getting to occupy a very prominent place in the agricultural economy of Iraq. In 1977 it accounted for 11 per cent of the total cropped area and 50 per cent of the volume of production, whereas in 1970 it made up only 7 per cent of the area and 33 per cent of total production. In order to highlight the production of the most important vegetables, data concerning the total area, total production and yield of those vegetables whose area was approximately 30,000 donums and more, are included in Appendix II, Table I.

It is clear that the area devoted to some vegetables and fruits, for example, okra, green string beans, cucumber and melon doubled, or more than doubled, between 1975-1982. During the same period the total area and producing of other vegetables for example, tomatoes, remained fairly stable.

The total area devoted to melon almost quadrupled between 1975 and 1982, while its production increased almost sixfold. The area and total production of green string beans and cucumbers almost tripled during the same period. These increases demonstrate the effect of prices on production practices. Vegetables have enjoyed very favourable market prices during the past few years, compared with the prices of other products, especially grains. This has encouraged producers to expand their vegetable production and to adopt improved practices, such as the use of certified seeds, organic and chemical fertilizers, and pesticides. These practices have increased average yields for some vegetables considerably over the past few years. Melon yields increased by 743 kg per donum over the 1975-1982 period from 1,664 kg per donum to 2,407 kg per donum; the yield of

water melon increased by 409 kg per donum and that of cucumbers by 221 kg. per donum.

### Legumes

Data presented in Appendix II, Table 2 show the production of four major legumes which are grown in Iraq, namely, dry broad beans, chick peas, lentils and green gram. The total area planted in broad beans has decreased from almost 80,000 donums in 1975 to 27,600 donums in 1982. The effect of this on total production was somewhat offset by the improved yield over the same period from 224 kg. per donum to 406 kg. per donum. Chick peas achieved increases in total area planted, in production and average yield per donum, while lentils and green gram maintained almost the same levels of production.

### Oil Seeds

The three important oil seeds are linseed, sesame and sunflower. The production of linseed has ceased almost completely for only 2,300 donums were planted in 1982 yielding 300 tons. The area planted with sesame from 1975-1982 remained constant, but production declined by 2,000 tons. Sunflowers which are grown primarily on state farms, improved their production levels over the past 8 years.

### Tubers and bulbs

The total area planted in dry onions and potatoes hardly changed at all over the 1975-1982 period. However, the total production of both crops improved, and in the case of potatoes more than doubled, largely because of improved agricultural practices. Potatoes offer another example of how favourable prices affect the use of advanced technology in the production process.

### Industrial crops

Sugar cane is grown exclusively by the government in one area in the southern province of Meesan to supply the local sugar factory. Its production peaked at 200,000 tons in 1978 but dropped to 146,000 tons in 1982. The highest productivity level was achieved in 1981 when it reached 14 tons per donum, more than twice the yield obtained in 1975 of 6.7 tons per donum.

Cotton used to be one of the most important industrial crops grown in Iraq, however, for a variety of reasons farmers have been substituting for cotton more profitable summer crops like melon. The total area planted in cotton in 1982 was less than half of that in 1975, and total production was 36.5 per cent over 1982 output. Productivity has also deteriorated from 367 kg. per donum in 1975 to 293 kg. per donum in 1982.

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Cotton is considered a high labour intensive crop when grown by small farmers. Furthermore, it depletes the soil. These limitations, coupled with the price factor have combined to deter its production. According to the present strategy for agricultural development in Iraq, state farms will specialize in the production of such industrial crops that require a high degree of mechanization which can only be achieved through large scale farming.

The production of the other industrial crop, tobacco, grown primarily in the north eastern part of the country, has increased considerably since 1975. The average yield has more than doubled and production has nearly tripled over the past eight years, even though the total area planted has increased by only 30 per cent.

### Livestock Production

Ever since the mid-seventies, rising incomes and the improved purchasing power of families have increased the demand for livestock products considerably and this sector has come to occupy a very important place in the economy. In 1977, it achieved a value added equalling 112 million dinars which represented 30 per cent of the total value added in the agricultural sector.

Data presented in Table 10 indicate the substantial growth that has taken place in the poultry industry over the past eight years. In 1982 the production of poultry, which is a private sector enterprise, and of eggs, which is state-run, was almost three times that of 1975. Despite rising production supply of both products does not match demand. However, recent policies taken in regard to prices and loans to poultry projects are expected to boost production and achieve a greater self-sufficiency. Similarly, steps taken by the government in support of dairy farmers, such as the distribution of imported Freezian cows and feeds, improving veterinary services and price supports, have contributed to achieving the 80 per cent increase in milk production over the past eight years.

TABLE II:10 LIVESTOCK PRODUCTION 1975 - 1982

(in tons)

Livestock Products	1975	1976	1977	1978	1979	1980	1981	1982
Beef, Veal, Mutton, Lamb and Goat meat	122,000	148,100	163,100	135,800	137,500	115,300	100,600	100,400
Chicken	29,000	29,600	31,000	42,100	45,700	59,800	64,600	90,000
Fish	15,900	16,800	16,300	36,800	48,100	43,900	39,900	34,800
Milk	296,000	321,000	346,000	337,800	342,400	310,600	322,300	347,200
Hen eggs (in mns.)	318	450	709	1,067	1,003	972.9	933	931.6

SOURCE; Ibid.



As regards red meat, the data in Table II:10 show rising production figures from 1975-1977 followed by a gradual decrease until production in 1982 was 61.5 per cent that of 1977. These figures do not necessarily reflect a decline in the number of live animals as it is known that a certain undetermined portion of locally raised animals, especially sheep, illegally cross the borders to neighbouring countries.

Fish production also achieved a 33 per cent growth rate during the second half of the seventies, but started experiencing a small decline beginning in 1980. This may be due to the present conditions surrounding deep sea fishing activities.

### Consumption

Average per capita consumption is a function of average per capita disposable income. The huge increases in GDP which took place around the second half of the seventies and which boosted per capita income were reflected on the demand for food and other agricultural raw materials. A study conducted in 1971-1972 revealed that 50.6 per cent of family budgets in Iraq were spent on food items and this dropped to only 49.2 per cent in 1976. The estimated demand income elasticity for food items is 76 per cent, which is another indicator of the level of increase in food consumption. The total value of marketed agricultural products in 1975 was 70.5 million dinars and had increased by 63 per cent in 1976 to 114.8 million dinars.

It should be pointed out that these increases in consumption reflect changing patterns in actual demand of agricultural products and not necessarily functional demand, especially for higher income elasticity products, such as fruit, vegetable and animal products. Actual demand is derived simply by adding amounts imported of a particular commodity, if any, to total local production of the same commodity. Self sufficiency, then, becomes a function of local production over total consumption.

TABLE II:11. TOTAL CONSUMPTION OF CERTAIN AGRICULTURAL PRODUCTS 1975-1980

(in tons)

Agr. Prod.	1975	1976	1977	1978	1979	1980
Cereals						
Wheat	1,375,200	1,855,700	1,874,000	2,297,700	2,484,600	2,897,000
Barley	439,300	566,900	514,000	674,000	660,200	867,500
Rice	204,500	299,900	353,000	319,400	390,000	500,100
Maize	51,300	65,000	108,200	160,800	208,600	256,000

(Cont'd)

TABLE II:11 (Cont'd)

Agr. Prod.	1975	1976	1977	1978	1979	1980
Other crops						
Chick Peas	13,600	10,200	12,300	15,700	26,900	
Lentils	15,300	12,100	11,300	14,600	15,000	
Potatoes	49,500	80,200	76,400	118,000	106,900	124,000
Animal Prod.						
Veal, Beef, Mutton, Lamb and Goat meat	112,000	125,000	160,000	170,000	187,000	209,000
Chicken	34,000	52,000	59,000	73,000	102,300	140,000
Fish	23,000	30,000	40,000	40,200	52,700	59,000
Milk	365,000	420,000	418,000	497,000		
Eggs (in mns.)	796	797	900	1,108	1,315	1,595

SOURCE: Agricultural Production and Its Development, 1958-1980 (Ministry of Agriculture and Agrarian Reform, Office for Planning and Follow-up).

Data presented in Table II: 11 represent total consumption i.e. actual demand of major crops and animal products for the period 1975-1980, whose local production did not meet total consumption requirements. Table II: 12 compares total production with total consumption for the same products for 1980, the last year for which data were available in terms of imports.

TABLE II:12 TOTAL PRODUCTION, TOTAL CONSUMPTION AND PERCENTAGE SELF-SUFFICIENCY FOR CERTAIN AGRICULTURAL PRODUCTS, 1980

(in tons)

	Production	Consumption	Gap(Import)	Percentage of self-sufficiency
Cereals				
Wheat	975,600	2,897,000	1,921,400	34
Barley	612,400	867,500	255,100	71
Rice	166,900	500,100	333,200	33
Maize	59,600	256,000	196,400	23

(Cont'd)

TABLE II:12 (Cont'd)

	Production	Consumption	Gap(Import)	Percentage of self-sufficiency
Other Crops				
Chick Peas	11,600	26,900	15,300	43(1)
Lentils	6,600	15,000	8,400	44(1)
Potatoes	97,000	124,000	27,000	78
Animal Products				
Beef, mutton, Lamb and Goat meat	115,300	209,000	93,700	55
Chicken	59,800	140,000	80,200	43
Fish	43,900	59,000	15,100	74
Milk	337,800	497,000	159,200	68(2)
Eggs (in mns.)	972.9	1,695	722	57

SOURCE: Compiled from Tables II:7, II:8, II:9, II:10, II:11 and Appendix II Tables 1 and 2.

1. Self-sufficiency is for 1979
2. Self-sufficiency is for 1978

The difference between the two figures represents the amount of the product imported. (1) The value of these imports in 1980 was 396 million dinars which accounted for 17.7 per cent of the total value of imports for the country. Cereals alone accounted for 47.6 per cent of the total food commodities imports.

During the 1975-1980 period which is covered by the data presented in Table II, total consumption of wheat, barley, rice, and maize increased by 111, 97, 144 and 399 per cent respectively. It is interesting to note that a study(2) conducted in 1979 had estimated total demand on these products for 1980 to be as shown below:

(1) The products which are not listed in the table are those with a relatively high self-sufficiency ratio.

(2) Developing Agricultural Sector, p. 22.

(in million tons)	Predicted Demand	Actual Consumption	Difference
Wheat	2.03	2.90	-867
Barley	1.38	0.87	+508
Rice	0.61	0.50	+110
Maize	0.15	0.26	-106

Actual total consumption differed significantly from the predicted estimates. For example, the study underestimated demand on wheat and maize by 867,000 and 106,000 tons respectively, whereas it overestimated demand for barley and rice by 508,000 and 110,000 tons respectively. When one takes into consideration the fact that these predictions were made only one year in advance, it becomes clear how difficult it is to accurately predict demand for agricultural products over longer periods of time, in view of the fast changing structures of the Iraqi economy. During the same five year period the consumption of poultry rose by 312 per cent. The consumption of fish rose by 165 per cent and eggs by 113 per cent. These considerable increases can partly be explained by the fact that the prices of these products remained relatively stable during that period because of government regulation except for river-fish which is not subject to government control. Data presented in Table 12 summarize the self-sufficiency ratios for cereals, animal products, two legumes and potatoes.

Wheat and rice, the main sources of carbohydrate in the Iraqi diet, achieved about one-third self-sufficiency. This can be attributed mainly to the fact that while consumption of these commodities increased sharply during the second half of the seventies, production remained almost constant during this period.

The other two cereals, barley and maize, constitute inputs in the production of animal protein, and the sharp increases in their consumption can be explained by the expansion of the poultry and dairy industries.

Despite the tremendous increase in poultry production of 106 per cent in 1980 and 210 per cent in 1982 compared to 1975, consumption grew at such a rapid rate as production was unable to meet rising demand. Thus self-sufficiency of poultry production has remained relatively low at 43 per cent.

The main problem that stands in the way of supplying animal protein is in the area of red meat production. This sector has not been able so far to achieve the growth that is needed to increase its self-sufficiency.

### Future Prospects

1. The agricultural sector in Iraq has evolved into a typical mixed economy with the public and private sectors involved both

in the supply of inputs and in production. However, the rates of involvement of each sector in both areas differ. The private sector has the dominant role in actual production while the government largely controls the supply of inputs and agricultural services. Each sector is confronted with particular problems. The public sector faces management problems like inefficiency while the private sector calls for agricultural policies which provide production incentives to considerably increase output of vital commodities in short supply. Today, however, agricultural strategies and plans have not reflected the differing needs of these two sectors. It is essential that future planning efforts should aim at integrating the particular challenges facing the public sector with the needs and policy concerns of the private sector.

2. The primary issue which confronts agricultural policy planners is that of prices for agricultural inputs and outputs. Experience has shown that price fluctuations for agricultural inputs together with generally low prices of certain agricultural commodities, mainly cereals and some industrial crops, have worked as disincentives to farmers in decisions relating to the expansion of acreage and the introduction of more intensive cropping methods for such commodities. Therefore, the entire range of pricing policies, including government supports to inputs and outputs, needs a thorough reevaluation in order to arrive at new criteria for its regulation.

3. The second Agrarian Reform Law no. 117 of 1970, abolished feudal exploitative forms of land rights, and imposed maximum and minimum limits on the size of landholdings. These limits were based on criteria calculated to provide the beneficiaries with incomes considered to be adequate. This was done at a time when: a) the majority of the population and workforce was rural; b) a very high proportion of farm labour tasks were performed manually; c) job opportunities in urban areas were limited due to a stagnant economy; and wages paid for semi-skilled and unskilled non-agricultural labour were meagre and hence not competitive with income derived from agriculture. The rapid economic, social, educational and cultural transformations that have taken place in Iraq during the past decade have changed the factors outlined above: the rural population no longer constitutes a majority and the agricultural labour force is rapidly decreasing; mechanization is increasing; job opportunities in urban areas have multiplied and wages have risen rapidly.

One of the consequences of all of this has been that the limits imposed by law 117 no longer enable certain families cultivating their lands with existing technologies to derive incomes comparable with those derived from urban jobs. This is particularly true of families with medium and low quality lands unsuitable to vegetable production. Furthermore, the low rates of occupational turnover in agriculture and the high rates of migration have resulted in surplus land, some of which has been

recently reclaimed. All these factors seem to point to the need for revising the upper limits of landholdings in rainfed and irrigated areas to enable producers to introduce mechanization and other high technologies in the production of important crops like cereals, particularly wheat.

4. There is a definite need to tie workers' wages on state farms to their level of productivity and to offer more opportunities for advancement. For in the past state farms have encountered serious difficulties in performance on account of such inefficient management practices as those described above.

5. There is a need for basic and applied research to promote integrated rural development and agricultural production, especially in the following areas:

(a) Factors affecting demand on agricultural products, i.e. population, income, prices, etc.

(b) Economic factors affecting the agricultural production process.

(c) Comparative studies in agricultural and rural development to determine changes over the years in:

- Yields and total production for various products.
- Per capita, total consumption and imports.
- Wastes in production and processing.
- Socio-economic levels in rural areas.

(d) Manpower in rural areas:

- Available and needed manpower.
- Agricultural labour productivity under differing modes of production.
- Rural to urban migration.
- Wage policies in agriculture.

(e) Inputs for integrated rural development.

(f) Co-ordination between the agricultural and other sectors of the economy.

(g) Specialization in agricultural production.

(h) Trends in integrating agriculture in Arab countries.

In order that these and other problem areas receive proper consideration, existing research organizations in Universities and in the Ministry of Agriculture and Agrarian Reform (Centre for Agricultural Economics and Extension Research) must receive the necessary financial and other resources. As far as the Scientific Research Council is concerned, it is recommended that

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special research unit be created in the Centre for Research in Agriculture and Water Resources for planning, implementing and following up needed economic and social research in the agricultural sector.

6. A number of factors have contributed to the decline of the agricultural sector. In particular, growing educational opportunities have resulted in the flight of an increasing number of youths away from the land. Therefore, a number of measures should be introduced to attract graduates of agricultural colleges back to the land. Firstly, the 1980 law making graduates of agricultural institutes eligible for land up to 30 donums should be broadened. Secondly, the curricula of these institutes should emphasize practical training and the acquisition of skills necessary for successful farming. These graduates should be given preference in land distribution so that their technical know-how can be utilized to the full.

7. At present agricultural productivity is low, in general, and one of the factors contributing to this is the reluctance of farmers to adopt improved cultural practices in the production process. The diffusion of agricultural innovations is usually carried out by an extension organization which assumes the role of helping farmers acquire the knowledge, skills and attitudes necessary for their adoption. However, extension presently lacks the necessary resources to perform this function efficiently, especially in the area of having a sufficient number of properly trained personnel at the local level. Local level extension workers need to be highly experienced, properly motivated and well trusted by farmers. In reality most extension workers are young, inexperienced, inadequately trained and poorly motivated. The situation can be partly rectified by recruiting experienced staff from other technical departments, who are interested in extension work and provide them with the necessary training in extension methodology in order to gradually build up local level personnel to acceptable levels.

PART TWO

SOME ISSUES OF AGRICULTURAL DEVELOPMENT

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COMPARATIVE REVIEW OF AGRICULTURAL DEVELOPMENT  
PLANNING IN THE NEAR EAST AND NORTH AFRICA\*

INTRODUCTION

In the Near East and North Africa planning as a tool for rapid agricultural development is now being increasingly recognized both by countries with potential in this field and by the oil-rich countries with scarce agricultural resources. While countries such as Iran, Iraq, Pakistan, Sudan and Syria have had two decades or more of planning experience, others are relatively new in using planning as a vehicle for development.

These countries are also at different levels of agricultural development. While yields in Egyptian agriculture, with its abundant water resources, are comparable to those of developed countries, productivity is low in many other countries with rainfed agriculture. Agricultural GDP per capita of the rural population in 1975 was as low as US\$ 42 in Somalia and US\$ 70 in Afghanistan and Yemen PDR while it was more than three times in Iraq and Syria compared to the latter.

Differences are also noticeable in the role assigned to the public sector. While in the People's Republic of Yemen and Algeria, and, to a lesser extent in Syria and Iraq, the public and co-operative sectors are dominant, Jordan and Saudi Arabia have free-market economies. However, the majority of countries under discussion have mixed economies.

A comparative review of agricultural development planning experience could serve a fourfold purpose. It could increase the awareness of planning activities and strategies in the countries of the region and help in the identification of problems common to a number of countries. Secondly, it could indicate the directions following which the formulation and implementation of plans could be improved. Thirdly, it could facilitate the identification of areas in which planning capability needs to be strengthened. Fourthly, it could enable an assessment of the extent to which national plans reflect possibilities for regional co-operation and co-ordination of effort.

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\* Prepared in the Policy Analysis Division (ESP) FAO, Rome.

This review is divided into seven sections:

- I. The setting
- II. Objectives and strategies
- III. Planned allocation of resources
- IV. Plan implementation
- V. Organization for planning
- VI. Multilevel planning and
- VII. Harmonization of national plans.

## I. THE SETTING

Differing emphasis has been placed by the countries of the region on the role of the public sector in development. In the Peoples' Republic of Yemen and Algeria, the public and co-operative sectors are dominant. To a lesser degree this is true also of Syria and Iraq. Jordan and Saudi Arabia, on the other hand, have an essentially open laissez-faire economy. In between these two types of economic structures are the majority of mixed economies. In economies where there is a large private sector, greater reliance has to be placed on provision of incentive and disincentives to influence investment decisions than in a socialist economy.

The size and importance of the agricultural sector vary as between the countries. Although the share of agriculture in GDP has been declining in a number of countries due to the faster rate of growth of other sectors, it is still sizeable in many. The share of agriculture in GDP is between 40 and 60 per cent in Afghanistan, Sudan and Somalia; between 30 and 40 per cent in the Yemen Arab Republic and Pakistan; and between 20 and 30 per cent in Egypt, and Syria. Agriculture accounts for about 80 per cent of total employment in the first group of countries and between 50 and 75 per cent of total employment in the second and third group of countries. The share of agricultural exports in total exports is as high as 90 per cent in the first group of countries. It is between 20 to 40 per cent in Egypt and Pakistan. In all the above countries, the pace of development of the agriculture sector exercises a strong influence on the pace of economic growth. On the other hand, in the oil exporting countries - Algeria, Iraq, Iran, Kuwait, Libya and Saudi Arabia - the most important sector is the oil sector; the share of agriculture in GDP is insignificant in these countries. However, even here the agriculture sector provides 30 to 60 per cent of total employment as in Algeria, Iraq, Iran and Saudi Arabia. Appendix III, Table 2, gives the salient characteristics of the economy of the countries of the region.

In no other region is there such sharp contrast in income levels as in the Near East and North Africa. Per capita GDP in 1980 in oil exporting countries ranged from US \$ 2109.0 in Algeria to US \$ 10,697 in Libya. The non-oil exporting countries can be grouped into three categories. There is the high income bracket with a per capita income above US \$1,000, the middle income bracket with a per capita income between US \$600 and US \$1,000 and the low income bracket with a per capita income below US \$500. To the first group belong Lebanon, Syria and Tunisia; to the second group Morocco and, to the third group, Afghanistan, Egypt, Pakistan, Somalia, Sudan, Yemen Arab Republic

Republic.(1) The tremendous increase in the revenues of oil exporting countries since the price rises of 1973 have opened up possibilities for co-operation in investment and financing of agricultural development between OPEC and less developed countries in the region.

In most countries of the region, there is now greater interest in and concern for agricultural development. Population growth in the region grew by 3.1 per cent per annum between 1963 and 1975. Income growth too has been extremely rapid in a number of countries owing to the direct and indirect effects of oil revenues. Growth has also been rapid even in non-oil countries (such as the Yemen Arab Republic) which have benefited from oil revenues through inflows of official and private capital. Population growth compounded by income growth has led to a rapid increase in food demand. Owing to the uncertain prospects for long-term food supplies and the increased import bill, there is now a renewed emphasis on agricultural development in the development plans of the countries of the region. In the oil rich countries, the emphasis on planned agriculture and rural development has stemmed partly from the necessity of diversifying their economies and partly to provide productive employment opportunities in rural areas thereby restricting the outmigration to urban areas.

The growth of the agricultural sector is subject to three fundamental constraints: natural resources, skilled manpower and finance. Among the non-oil exporting countries, a narrow agricultural resource base is characteristic of Afghanistan, Egypt, Jordan, the Yemen Arab Republic and People's Democratic Republic of Yemen. Among the oil exporting countries, Iraq and Iran have considerable agricultural resources the development of which can contribute to rapid agricultural growth. Investment resources have also increased for countries benefiting indirectly from oil revenues through generous foreign aid and worker's remittances, the Yemen Arab Republic in particular.

The second constraint has become critical. The shortage of planners and development administrators for identification, formulation, and appraisal of projects and for their implementation has been retarding and limiting the flow of investment funds into agriculture. There has also been an acute shortage of experienced managers and skilled workers in agriculture. These shortages have been aggravated by large scale migration to the oil rich countries. Increasing the supply of skilled manpower

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(1) The per capita GNP of Yemen Arab Republic is much higher due to generous foreign aid and workers remittances from oil rich countries.

through training has now become crucial in almost all countries of the region to achieve faster agricultural development.

## II. DEVELOPMENT OBJECTIVES AND STRATEGIES

Since the countries of the region are at different levels of development and their endowment of natural and human resources vary, the development goals set cannot be expected to be identical. However, underlying the differences, there are certain common goals of agricultural development.

The main focus of all the development plans is on faster growth of the economy and of the agricultural sector in particular. This is apparent from the planned growth rate of GDP and agricultural production. The following table indicates the rates of growth of GDP and total agricultural production envisaged in the development plans of the countries of the region:

TABLE 1. PLANNED GROWTH RATE OF GDP AND TOTAL AGRICULTURAL PRODUCTION

Country	Plan Period	GDP	Total Agric. Product
Afghanistan(1)	1976-83	6.3	4.7
Algeria(2)	1980-84	8.2	4.0
Cyprus	1982-86	4.0	2.9
Egypt(3)	1982-86	8.1	3.7
Jordan(4)	1981-85	11.1	7.5
Libya	1981-85	8.5	9.4
Morocco(5)	1981-85	6.5	3.4
Oman(6)	1981-85	13.1	15.6
Pakistan(7)	1978-83	7.5	6.0
Somalia(8)	1982-86	4.8	4.2
Saudi Arabia(9)	1981-85	3.3	5.4
Sudan	1977/78-82/83	7.5	6.5
Syria(10)	1981-85	7.7	7.8
Tunisia(11)	1982-86	6.0	4.7
Yemen PDR(12)	1981-85	10.3	9.6
Yemen AR(13)	1982-86	7.0	4.2

SOURCE: The Current Development Plans.

(1) At constant 1979 prices

(2) Only agriculture, animal husbandry and forestry

(3) At constant 1981/82 prices

(4) At constant 1980 prices

(SOURCE; Cont'd)

- (5) At constant 1981 prices
- (6) At constant prices, Agriculture and Fisheries
- (7) At 1977/78 prices
- (8) At constant prices. Crop production 5%, livestock 3.6%, fisheries 22.9% and forestry 3.0%.
- (9) At constant 1969/70 prices. Non-oil sectors 6.2%.
- (10) Agriculture, Forestry and Fisheries
- (11) At constant 1980 prices.
- (12) Total production.
- (13) At constant 1981 prices.

It will be noticed that agricultural output is targeted to grow less rapidly than production in the rest of the economy in most countries. Thus, the trend towards a reduced share of agriculture in GDP, mentioned in Section I, would continue. However, the annual growth rate of agricultural production has been substantially higher in most countries than what has been envisaged in the United Nations Second Development Decade. It will also be noticed that countries with a relatively larger share of agriculture in GDP as for example, Somalia and the Yemen Arab Republic, have tended to set a low or modest target for growth ostensibly due to the difficulty of obtaining a large agricultural surplus for investment. On the other hand, countries with a relatively small agricultural sector like Jordan, Libya, and the Yemen Democratic Republic have tended to set a higher target. Countries whose agricultural exports constitute a high proportion of total exports like Pakistan, Sudan and Syria, have also set a high growth rate for agriculture.

The aim of achieving faster agricultural growth has been dictated by a number of considerations. As mentioned earlier, many countries now aim at greater self-reliance in food due to the inability of production to meet demand and consequent higher food import bills. The uncertain long-term prospects of food supplies have tended to reinforce the need for food security. Separate targets have been set for cereal production in most countries in the Near East. In some countries like Pakistan, Somalia, Sudan, Tunisia and Yemen PDR they are higher than the rate of growth set for total agricultural output. The table below indicates the planned growth of cereal production in the countries mentioned above.

TABLE 2. PLANNED GROWTH RATE OF CEREAL PRODUCTION  
(Per cent per annum)

Country	Plan Period	Growth Rate of Cereal Production
Pakistan	1978-83	7.5
Somalia	1982-86	8.4
Sudan	1977/78-82/83	11.3
Tunisia	1982-86	12.1
Yemen PDR	1981-85	12.1

The goal of faster agricultural growth has also been dictated by the need for higher agricultural export earnings which have become particularly acute for the non-oil exporting countries. The development plans of Afghanistan, Pakistan, Somalia and Sudan have all laid great emphasis on increasing foreign exchange earnings and improving the balance of payments. The rate of growth of agricultural exports envisaged in Sudan's Six Year Development Plan is as high as 11 per cent per annum.

In the oil exporting countries, an overriding goal of agricultural development has been the diversification of the economy so as to reduce excessive dependence on oil as non-renewable asset. For example, in Saudi Arabia's current five year plan this has been laid down as a major objective of development.

#### Shift in development objectives

Employment and income distribution are gaining higher priority in the region and higher agricultural growth is regarded as the main way of achieving their goals. For example, the National Charter adopted in 1971 and incorporated in the 1974-77 plan of Algeria specifically underscores the importance of agriculture for creating jobs, and for increasing and improving income distribution. In some of the development plans, specific targets for agricultural employment have been set as may be seen from table 3.

TABLE 3. PLANNED TARGET FOR AGRICULTURAL EMPLOYMENT

Country	Plan Period	Planned percentage annual rate of increase in employment in agriculture
Afghanistan	1976-1983	1.5
Egypt	1982/83-86/87	2.1
Pakistan	1978-83	2.5
Saudi Arabia	1981-85	- 2.5
Syria	1981-85	2.4
Yemen PDR	1981-85	4.3

However, many countries face shortages in labour supply due to migration to urban areas and to oil-rich countries. This is raising the opportunity cost of labour in these economies which in turn is leading to a rapid pace of mechanization. Manpower planning has now become a major objective of development planning in most of the countries of the region as a result of the scarcity in skilled and unskilled labour.

#### Conflict of objectives

There is often a conflict in the goals set out in any development plan, the most common one being that between higher production and equity. For example, in view of the limited resources, the last Five Year Development Programme (1974-78) of Somalia accorded high priority to concentration of a package of services in the high productive areas of the country. Thus higher output took precedence over a balanced development of the different regions in the country. On the other hand, the Algerian plan is trying to improve income distribution among the different regions.

The choice between growth and equity is nowhere more pronounced than in the development of the agricultural sector in the Sudan. Here the choice is between large-scale modern sector development in agriculture and development of the traditional sector. It is argued that traditional agriculture and animal husbandry are capable, in the long term, of better returns to investment than either mechanized, rainfed or irrigated agriculture.<sup>(1)</sup> This, however, rests on the premise that the required investments in social and economic overhead capital would be

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(1) ILO, Growth, Employment and Equity: A Comprehensive Strategy for the Sudan.



made and suitable technologies relevant to the needs of the small farmers and pastoralists developed.

The objective of fulfilling the population's basic needs also comes into conflict with increased output for food subsidies involving diversion of resources to consumption at the cost of public savings and investment. Unless productivity is increasing at the same time, this tends to have an adverse impact on the growth of the economy.

Another conflict in objectives takes place between employment and productivity in choosing between labour-intensive and capital-intensive strategies of production. This choice is with largely rural-based economies. In such countries where farm mechanization is being undertaken on a large scale, its effect on breaking the bottlenecks in production has to be carefully weighted against its repercussion on employment.

### III. PLANNED ALLOCATION OF RESOURCES

The allocation of resources has three aspects: volume, distribution and the efficiency with which resources are used.

#### Volume of Resource Allocation

The size of resource allocation can be measured by the share of total investment in GDP. A substantial proportion of GDP has been allocated in the current development plans to achieve the high growth rates laid down. Compared to the previous plan, there has been a 67 per cent increase in the share of the total investment in GDP in the Sudan and about 46 per cent in Morocco. On the other hand, in Syria, there has been practically no increase. In general, countries aiming at a high rate of growth of GDP plan for a high share of investment in total output and vice versa. The bulk of the investment in almost all countries is planned to be undertaken by the public sector as indicated in Table 4.

TABLE 4: PLANNED INVESTMENT

	Share of total invest- ment in GDP  %	Share of public invest- ment in total investment  %	Share of agric. (1) in total investment  %	Share of agric. in public investment  %
Afghanistan	24.6	84.3	n/a	24.7
Algeria	48.6	100.0	10.6	10.6
Cyprus	30.0	20.7	8.5	28.8
Egypt	25.4	76.6	10.7	9.9
Jordan	46.3	54.4	15.6	20.7
Morocco	-	31.2	17.7	33.6
Oman	23.8	64.9	5.1	5.5
Pakistan	20.2	70.5	20.5	20.7
Somalia	20.0	-	47.3	-
Sudan	20.5	58.8	26.8	27.1
Syria	29.0	79.6	16.9	19.2
Tunisia	-	-	18.9	-
Yemen Arab Republic	36.8	65.6	13.6	13.4
Yemen PDR	-	100.0	17.2	-

SOURCE: The Current Development Plans:

(1) The agricultural sector includes crop and animal production, fisheries, forestry, irrigation, land reclamation, community development and agricultural extension.

Algeria, Yemen Arab Republic and Jordan have planned to devote a larger share of GDP to investment than the other countries. These countries, as mentioned already, have planned for a rate of growth in GDP above 8 per cent. All the planned investment in Yemen PDR is in the public sector, with only a small share allocated to the mixed sector. On the other hand, reliance on private sector investment is marked in Morocco, Jordan, and the Yemen Arab Republic.

The proportion of investment allocated to agriculture is in general determined by the relative size of the agricultural sector in the economy. Where the agricultural sector is significant in the economy as in Sudan, Somalia and Pakistan, the allocation to agriculture has also been high. Compared to the share of agriculture in GDP, the proportion of investment allocated to agriculture is strikingly low in Egypt, Pakistan and the Yemen Arab Republic. However, investment allocation criteria cannot be based entirely on the share of agriculture in total domestic production as it is the object of planning in these countries to bring about structural changes in the economy.

A sizeable proportion of investment in agriculture is devoted to irrigation and land development since water is the main physical constraint against agricultural development. The following table indicates the share of investment in irrigation facilities in some of the development plans:

TABLE 5: SHARE OF INVESTMENT IN IRRIGATION IN THE CURRENT PLANS AS A PERCENTAGE OF TOTAL AGRICULTURAL INVESTMENT

Afghanistan	73.8
Algeria	50.5
Cyprus	61.9
Egypt	55.3
Jordan	54.6
Libya	45.0
Oman(1)	21.5
Pakistan	53.3
Somalia	50.6
Sudan	21.7
Yemen PDR	51.4
Yemen AR	

(1) Only public investment

In Yemen PDR, under the Second Five-Year Plan 1981-85 most of the investment in irrigation is for upgrading existing facilities which yield immediate return in terms of increased output.

The concentration of investment on land reclamation in some countries has been dictated by high cropping intensity and high population density. Thus, in Egypt, the concentration on land reclamation has been due to the need "to escape the confines of the Nile Valley". However, the relative neglect of drainage in irrigation development has prevented the full benefits of irrigation being realized. This is so in Egypt, Iraq, and Pakistan. In view of the gravity of water logging and salinity, the current Five Year Plan 1978-83 of Pakistan places a great emphasis on drainage and as much as 40 per cent of the total allocation for water development in the plan has been for drainage and reclamation.

The irrigated areas have received proportionately larger share of investments, technology and infrastructural facilities than rainfed areas, though the latter constitute about 70 per cent of the arable land in the region. Areas that lend themselves to irrigation have the greatest potential in increasing output. On the other hand, rainfed areas with predominately small subsistence farms tend to have smaller output. To obtain the same output from rainfed areas, much more research and extension work and provision of infrastructure on the part of

the government agencies would be called for. With the overriding goal of increasing food output, investment flows are directed to irrigated agriculture as assured water is a prerequisite for the new technology in agriculture to have its impact on production. However, in view of the size of the dry farming subsector, the imbalance in investment requires to be corrected. Moreover, increasing the income of the small farmers depends on increasing their productivity. Furthermore, the rate of growth of agricultural production cannot be sustained without the utilization of the resources of dryland areas and small farmers particularly in Afghanistan, Iran and Sudan. Also the cost of irrigation development in future is likely to be high as obvious irrigation facilities seem to have been mostly exhausted in some countries. Greater attention in resource allocation has therefore to be devoted to intensification of land use in irrigated and rainfed lands.

Another area to which greater attention needs to be paid in resource allocation is livestock development. Although livestock production contributes 30 to 40 per cent of the agricultural GDP in a number of countries in the region and there has been a rapid expansion of demand for livestock products and rapid rise in imports, the allocation of resources to the livestock subsector has not been adequate for its modernization. The following table indicates the planned allocation for livestock development in the current development plans of some of the countries in the Near East.

TABLE 6: ALLOCATION FOR LIVESTOCK AS A PERCENTAGE OF INVESTMENT IN AGRICULTURE

Algeria	10.1
Cyprus	4.9
Libya	8.0
Somalia	31.2
Sudan	22.8
Syria	6.4
Yemen PDR	5.3
Yemen AR	7.8

The modernization of the livestock subsector calls for substantial investments in marketing, finishing, slaughter, cold storage and transport facilities to increase off-take rates besides development of pastures, feed and water resources. Considering the magnitude of required investment, the flow of investment funds to this subsector has not been adequate.

The fisheries subsector has been receiving substantial investment in Yemen PDR in view of its large growth potential. The Second Five Year Plan 1981-85 of the country has allotted 7 per cent of total investments in the economy to fisheries devel-

opment. However, more attention is being paid to industrial fishing compared to traditional fishing although it has considerable potential to increase output in the short run. Compared to the importance attached to fisheries development in Yemen PDR, fisheries have been given low priority in investment in Syria and Jordan.

Allocation to agricultural research and extension has been negligible in the region under discussion, for example, in Jordan and Syria. In contrast in Sudan's Six Year Development Plan, special attention is to be given to research on rainfed crop production and on strengthening the extension services.

#### Efficiency of investment

The efficiency of investment is indicated by the rate of growth of output in relation to the magnitude of investment. In Algeria, Morocco and Yemen Arab Republic investment is being made in capital intensive projects such as irrigation and land reclamation whose pay off in increased output cannot be expected to come until after the planning period. On the other hand, in Afghanistan reliance is being placed more on less capital intensive investment and on better utilization of productive capacity.

### IV. PLAN IMPLEMENTATION

The weakest link in planning in the region has been the gap between plan formulation and implementation. This can be ascribed in the main to (a) inadequate identification and preparation of projects; (b) lack of harmony and consistency between the budget and the development plan; (c) failure to adopt annual planning as a tool of plan implementation; (d) insufficient attention to the institutional framework of agricultural development; (e) lack of adequate monitoring of projects under execution, and (f) shortage of trained and skilled personnel.

#### (a) Inadequate identification and preparation of projects

One of the main reasons for the wide gap between targets and achievements frequently observed in agricultural developments programmes, as illustrated in table 7, is that investment projects are not properly identified and prepared. In the Yemen Arab Republic, although a number of projects are listed in the plan document, many of them lack feasibility studies. Another defect is that the projects do not identify the policies and institutional arrangements needed for their implementation. The result has been inordinate delay in their execution. Nor is selection of projects always made in the light of their likely contribution to the achievement of the planned goals. Lack of well conceived projects also stand in the way of utilization of

funds, domestic and external, made available for agricultural development. This has resulted in slow pace of development.

(b) Lack of harmony and consistency between budget and the development plans

If the plan is to be implemented on the ground there should be close co-ordination between the development plan and the budget. Development programmes and projects included in the plan have to be provided with the requisite funds for their implementation. Before the introduction of annual planning in Pakistan in 1968/69, there was a tendency to include in the budget several projects not included in the plan and several projects envisaged in the plan did not get budgetary support. In Sudan, when the Five Year Plan 1970/71 to 1974/75 was extended for two more years and revised, a number of additional programmes entailing development expenditure were given high priority although not included in the revised plan.

(c) Annual planning as a tool of plan implementation

An annual plan within the framework of a medium term plan helps to make the latter operational. An annual plan spells out in greater detail the targets, programmes and policies to be implemented each year. It is a useful means of reviewing progress of implementation in the light of changing circumstances and making orderly adjustments necessitated by unforeseen events. A shortage of planning personnel has generally hindered the introduction of annual plans in the region. However, Pakistan has been formulating such plans since 1968/69 and its annual plan for that year included the following elements:

- (i) An evaluation of the past performance of the economy in the preceeding period and the strategy for development for the ensuing year within the overall framework of the Five-Year plan;
- (ii) A presentation of the main targets to be achieved, that is to say, targets for gross national product, investment, savings, exports, imports, consumption and employment;
- (iii) An assessment of financial resources, internal and external, likely to be available during the year;
- (iv) An outline of the investment programme in the public and private sectors and of the physical targets to be achieved in major sectors/fields;
- (v) A broad outline of the economic policies that may be necessary to achieve various targets;

(vi) An analysis of the sectoral programmes and targets with special reference to the balance-of-payments position, overall employment opportunities, price and wage stability and other important elements of the economy. (1)

(d) Insufficient attention to the institutional framework of agricultural development.

The implementation of the plan for agricultural development is dependent on effective institutional credit and extension measures. Agricultural credit agencies in the non-oil exporting countries are still unable to meet the financial needs of the small farmers, tenants, sharecroppers and small fishermen for the purchase of inputs. This is due to their low income and low repayment capacity resulting in a high risk of default. The repayment capacity could be increased if supervised credit is provided and linked to marketing as is done in Egypt, Iraq, Libya, Syria and the Yemen Democratic Republic. The provision of credit to farmers particularly for on-farm development associated with irrigation projects could lead to elimination of significant waste in irrigation water and increase both intensification of land and crop yields.

Agricultural extension services are in general inadequate for the task which needs to be carried out. A mere increase in the number of extension personnel is not enough. Technology relevant to the particular areas has to be developed and introduced to the farmers. Even when new technology is available, farmers cannot take advantage of it unless the required inputs are made available. This means that the supply and distribution of inputs have to be made available when they are required. Also the price relationship between input and product must be such as to induce farmers to accept the recommended application. The difficulty of reaching the small farmer in a country as large as Sudan through development of a delivery system has to be recognized. This is the biggest single obstacle in transforming traditional agriculture in such a large country.

(e) Lack of adequate monitoring of projects under execution

A major deficiency in plan implementation has been inadequate monitoring of projects under execution. In its absence delays, bottlenecks and cost overruns cannot be discovered in time for corrective action to be initiated. Only in very few countries like Egypt, Syria, Pakistan has there been a system of progress reporting although in the Yemen Arab Republic, the Gov-

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(1) Annual Planning in Pakistan: Journal of Development Planning No. 2: United Nations.

ernment has recently established a monitoring system for public sector projects. Under the general direction of the Minister of Development, the planning units attached to technical ministries have been given the responsibility of closely supervising the progress of individual projects. The planning units are to prepare progress reports at three-monthly intervals and submit them to the ministry concerned and to the Central Planning Organization. The reports are analysed by the projects department of the Central Planning Organization which ascertains the accuracy and completeness of the reports, identifies problem areas, and suggests remedial action. Although the system has not been fully operative, a beginning has been made in tackling a major weakness in plan implementation.

(f) Shortage of skilled and trained personnel

The main constraint to rapid economic and social development in the region has been the shortage of skilled and trained manpower, particularly in the agricultural sector. This has been caused both by an increased demand for trained personnel as development proceeded apace and to large-scale migration to oil rich countries. The countries which have been most affected by this squeeze have been Jordan, Syria, the Yemen Arab Republic, Yemen Democratic Republic and Sudan from where there has been a net emigration of professionals, technicians and skilled workers.

Demands for professionals can only be met if plans include programmes for augmenting their supply through education and training. For example, the Seven Year Economic and Social Development Plan 1976-83 of Afghanistan has indicated that for the development of agriculture there would be an additional demand for 1,259 high-level personnel and 2,972 medium-level personnel. For the economic sector and the administration, the demand for high-level personnel has been estimated at 3,156 and for medium-level personnel at 897. Similarly in the last Five-Year Plan 1975-80 of the Yemen Arab Republic which has given special attention to the manpower problems, such demand for agricultural development during the plan period was estimated at 23,000. To fill the manpower gap, the government is proposing recruitment from other Arab and Asian countries which have a surplus of trained manpower and providing incentives for skilled Yemenites to return home.

The current constraint on implementation of agricultural development plans both in oil rich countries and in countries benefiting from a spillover of oil revenues like Jordan, Syria, Yemen Arab Republic and Sudan lies in the lack of trained manpower. There is therefore an urgent need to gear educational and training systems to development requirements in these countries.



Achievement of planned growth rate in agriculture

The last development plans of many countries (Algeria, Iraq, Iran, Jordan, Libya, Morocco, Saudi Arabia, Syria, Tunisia and the Yemen Arab Republic) terminated in 1980. Several current plans are in the process of implementation hence it is not possible to evaluate the extent of present achievements. However, it is possible to compare planned growth rates and achievements of agricultural production of the most recently completed plans. This is indicated in Table 7.

TABLE 7: PLANNED GROWTH RATES AND ACHIEVEMENT OF AGRICULTURAL PRODUCTION

(Percent)

Country	Planned growth rate	Achievement(1)
Algeria (1974-77)	4.2	-0.82
Iran (1973-78)	7.0	3.38
Iraq (1976-80)	7.0	6.89
Jordan (1976-80)	7.0	6.23
Libya (1976-80)	15.8	3.97
Morocco (1978-80)	4.1	6.17
Syria (1976-80)	8.0	4.93
Tunisia (1976-80)	3.6	3.52
Yemen Arab Republic (1976-80)	5.5	-1.87

(1) Growth rate of agricultural production calculated from FAO indices of agricultural production 1969-71 = 100)

The only country to exceed the planned growth rate has been Morocco. Iraq, Jordan and Tunisia have very nearly achieved the planned growth rate. All the other countries set very ambitious growth rates unrelated to the realities of the agricultural situation.

While weather and external factors such as higher price of inputs due to rise in oil prices from 1973 have played a part in under achievement of targets, the deficiencies in plan implementation mentioned above have played a major role.

#### V. ORGANIZATION FOR PLANNING

The central planning agency must have strong political support to ensure commitment to planning as a vehicle for economic development. As planning cuts across ministries and often embraces the entire economy, the central planning agency should have the highest political status and should be located close to

the centre of government. It is a recognition of this need that has led some countries to put the central planning agency directly under the Prime Minister or the President. This gives the central planning agency sufficient authority to perform its crucial functions.

#### Sectoral Planning Units: the Planning Unit in the Ministry of Agriculture

To associate the technical ministries in the formulation and implementation of the development plans and provide them with a better basis for decision-making, the establishment of planning units in the technical ministries is encouraged by the central planning agency and such units have been established in most countries of the region. The functions of the planning unit in the ministry of agriculture are (a) provision of liaison with the central planning agency and with other agencies concerned with agricultural development; (b) helping in the formulation and co-ordination of the agricultural sector plan; (c) assisting the technical sections in the ministry to formulate and appraise projects; and, (d), following-up and evaluating the progress in the implementation of agricultural development programmes and projects. These functions are sometimes not very clearly defined as in respect of the planning unit in the Ministry of Agriculture in Sudan.

In many countries of the region such as Somalia, Sudan, the Yemen Arab Republic and Oman, the planning unit in the Ministry of Agriculture is weak and ineffective. This is due in the main to lack of qualified personnel. There has also been a rapid turnover of staff with the result that on-the-job experience is seldom gained. Often the head of the planning unit is not a planner or an economist with the result that the unit is not able to formulate and appraise projects, this being left to consultant firms.

In addition to strengthening the planning unit in the Ministry of Agriculture, improvement of the data base for planning is also required in most countries. Agricultural statistics in the Yemen Arab Republic and Somalia depend largely on personal judgement and guess-estimates. No agricultural census has been conducted in Somalia; nor is there any farm management data. If the base for planning is to be strengthened, improved data availability is a prime prerequisite.

#### Co-operation between the agencies involved in agricultural development

The dispersion of responsibility for promotion of agricultural development among a number of separate ministries, raises problems of co-ordination and co-operation between these agencies. These problems are particularly acute in Somalia where

the responsibility for agricultural development is compartmentalized and fragmented.

#### Shortage of Planning Personnel

An area where deficiency in trained personnel is keenly felt is in the identification and evaluation of projects. While financial resources for investment have increased dramatically in the region with the rise in oil prices, the capacity to absorb the flow of investment funds is limited by the dearth of trained personnel for execution of projects. The pace of implementation of the Basic Programme for Agricultural Development in the Sudan 1976-85, formulated by the Arab Fund for Economic and Social Development, has been slow precisely for this reason. Regional and national institutes for training of personnel in the various stages of project formulation and implementation needs, therefore, to be strengthened.

### VI. MULTILEVEL PLANNING

It need hardly be emphasized that the formulation of a national plan must take place at the central government level where overall resources are assessed, decisions made on allocation of resources and economic activities are directed or influenced. At the same time, the national plan should take account of the varying levels of development and different potentials of the regions within a country and allocation of investment should explicitly provide for regional differences in development levels. This would ensure a more equitable regional income distribution.(1)

The resource endowments and production potentials of the regions vary, especially if a country is large and so diversified as Iran and Sudan. The articulation of regional problems and regional involvement in the implementation of programmes and projects would be facilitated if there were a decentralization of planning to regional levels. Indeed policies for regional development should be regarded as a necessary component of a national strategy for development.

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(1) There has been a number of attempts at setting up and testing empirically a number of interregional programming models for the agricultural sector. The main problems tackled by these models are the determination of both optimum spatial agricultural production mix and interregional commodity flows. See Models for Spatial Agricultural Development Planning by F.K. Bishay.

### Requisites for decentralization of planning to the regional level

If decentralization of planning to the regional level is to become an operational activity, it is essential to have (a) a regional structure, (b) an agency or authority at the regional level with whom a dialogue can be conducted by the central planning agency, and (c) adequate capacity of the agency or authority to undertake the planning functions for its area.

### Types of decentralization

Two tendencies have been observed in the efforts at decentralization of planning. In Algeria, the type of decentralization that has occurred means that responsibility for technical and financial management is now undertaken by the production units. Agricultural units of the socialist sector are now being made responsible for their own production and investment plans under the supervision of local authorities and the regional branches of the Agricultural Credit Bank. In Sudan, on the other hand, there has been a deliberate attempt to associate the regional authorities both in the formulation and in the implementation of development projects and to integrate these projects into the national plan.

The concern in Sudan for promoting regional efforts in the preparation and implementation of agricultural development projects stems from the marked differences in income levels and rate of economic growth as between the regions. Much of the agricultural development through irrigation and mechanized rainfed agriculture has taken place in the Blue Nile Province and Kassala Province in Central and Eastern Regions while in the Western and Southern Regions the pace of development has been extremely slow. One of the important goals of the Six-Year Development Plan has been to reduce the economic differences between the various regions and thus narrow the disparities in income levels. Apart from the fairly wide geographic spreading of investment and modernization of the traditional sector, the Plan proposes the establishment of a regional planning body in all the provincial headquarters but this still has to be implemented. Two major problems in implementing the proposals for regional planning in Sudan are (a) the centralized administrative structure which leads to decisions on even minor investments being made by the central ministries in Khartoum, and (b) the dearth of technical personnel and the required planners for staffing the regional planning bodies.

Increased allocations have also been made for regional development. fifteen per cent of the total public sector investment in the Six-Year Plan has been allocated for a central development reserve and for regional development, with the proviso that the allocation for regional development should not fall short of Pounds Sterling 75 million. A joint fund is also

to be established for financing the regional schemes to which every province is to contribute according to its ability. Furthermore, attempts are to be made to find new resources for supporting the fund, such as levying of a regional development tax on all the rich provinces for the benefit of the poor ones.

What often militates against the effectiveness of regional planning is the weakness of the planning and administrative capacity of regional bodies. Both the technical skills required for planning and implementation of development programmes have to be built up at the regional level. Furthermore, both technical and financial assistance to the regional bodies have to be provided by the central authorities. The central planning agency must include staff concerned with regional development. This would enable the forging of close working relations between central and regional bodies and ensure that central decisions reflect regional conditions and views and vice versa.

#### Planning efforts at local level

The need for people's participation in planning and decision making, as well as in implementation, has been increasingly recognized of late and encouragement is therefore being given to planning from below. A rare example of successful effort along these lines is provided by the Yemen Arab Republic where Local Development Associations (LDA's) are being included in plan formulation and implementation. These associations have been organized throughout the country with the active encouragement and support of the government. Local development projects such as feeder roads, water supply schemes, schools and health facilities are identified by these associations and sent to the Central Government for approval. After examination by the Central Planning Organization and other government agencies, the approved projects are implemented by the LDA concerned. Financial and technical assistance are provided by the Confederation of Yemeni Development Associations (CYDA) established in 1973 to co-ordinate the activities of LDA's. The Central Government has earmarked 2.5 percent of customs duties for rural development projects. This resource together with special budget allocations are channelled through CYDA to the LDA's. The LDA's obtain their own funds largely from locally levied crop taxes of which they can keep three-quarters. This is supplemented by voluntary contributions mostly in kind, often in the form of labour.

The LDA's have started preparing medium-term investment projects for their respective areas. These are reflected in the First Five-Year Plan 1979-83 which envisages that the LDA's will invest a total of YR 1.5 billion (equivalent to US\$ 125 million) for access roads, schools, water supply and public health.

The implementation of development projects is hampered by shortage of qualified personnel and by inadequacy of financial resources. Hitherto, the LDA's have confined their activities to rural infrastructure and social service projects. They have not involved themselves in programmes aimed at raising agricultural productivity. In the long-run, they could play an important role in disseminating new production techniques and improving marketing of agricultural produce.

The establishment of LDA's have facilitated (a) the active participation of the beneficiaries of planned development effort, (b) the fostering of community spirit and local leadership and (c) the mobilization of substantial local resources both human and financial.

## VII. HARMONIZATION OF NATIONAL PLANS

Agricultural development as reflected in the development plans of the countries of the region is almost entirely focussed on the individual interests of the countries. Production targets set hardly take into account the regional market and the possibilities for specialization between countries.

Three difficulties, apart from political factors, have been commonly adduced for this lack of regional orientation. One is the absence of a long-term perspective for regional development which could serve as an overall framework within which national plans and policies can be viewed. The preparation by FAO of the global study: Agriculture: Toward 2000, which has been disaggregated to regional level,(1) is intended to provide such a framework for groups of countries for planning the development of their agricultural and rural economies. The second is the absence of a forum for national planners to be brought together periodically to discuss agricultural development in a regional context, although some organizations already in existence are supposed to fulfil such a function, as for example, the Council of Arab Economic Unity. Another forum is the Near Eastern Commission on Agricultural Planning which meets periodically to discuss regional planning problems and policies. The third difficulty is that of making structural changes so as to take advantage of differences in resource endowments. This problem is hard to solve since changes in production structure are not easy to make in respect of major crops as this would involve far-reaching changes in the production pattern of farmers.

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(1) See Implications of At 2000 for the Near East and North Africa Region. ESP: NECAP 80/4: Paper presented at the Ninth Session of the Near East Commission on Agricultural Planning, Damascus, Syrian Arab Republic, December 1980.

In no sphere of production is this difficulty more manifest than in food production. As already mentioned, a major objective of most development plans is to attain the maximum feasible extent of self-sufficiency in food. However, not all countries are very cost-efficient producers of food. Countries with large oil-resources but poorly endowed with natural resources for food production are developing agricultural projects for producing more food when there are other countries with the potential to produce food much more economically. In this situation, a degree of regional self-sufficiency is a better and more feasible economic goal than pursuit of a higher degree of self-sufficiency at the national level.

It is a recognition of these differences in comparative advantage, as well as the pressing need for food security, which has impelled the oil-rich countries to promote large-scale food production programmes in the Sudan with its vast underutilized resources and substantial potential for agricultural development. A ten-year Basic Programme was drawn up in 1975 aimed at tripling Sudan's agricultural output with a view primarily to secure sources of food and other agricultural commodities and thus strengthen regional self-reliance in food production. This programme is to be implemented by the Arab Authority for Agricultural Investment and Development in co-operation with the Government of Sudan. Detailed investment plans are to be agreed upon with the Government of Sudan so as to make them an integral part of the Government's development plan. Thus in the Six-Year Development Plan, a number of projects identified by the Arab Authority have been included and they form an integral part of the agricultural development programme. This is in line with the objective of the plan to create the necessary supply capability so as "to achieve self-sufficiency in selected crops and to meet world demand, particularly of the Arab World for food.(1) However, the pace of implementation of the Basic Programme has been extremely slow as pointed out in Section V.

#### Harmonization of national plans and policies at the sub-regional level

Harmonization of national plans and policies can be more effective if confined to subregional levels and if a selective approach is favoured. Some attempt in adopting such a subregional approach have been made by Syria and Jordan who have taken measures for co-operation in plant production and protection, range development and management, marketing and planning.

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(1) Sudan: The Six-Year Plan of Economic and Social Development 1977/78-1982/83, Vol. II, page 42.

A study(2) of comparative advantage in production of Syria and Jordan indicates that Syria has both an absolute and relative comparative advantage in the production of major commodities except off-season vegetables and sheep production. It is therefore to each country's advantage to link their production plans to achieve a higher degree of interdependence.

The development plans of most of the countries emphasize the shortage of trained personnel as a serious constraint to agricultural development. Yet no national development plan has recognized the possibility of providing such training at the subregional level.

#### Institutional arrangements for plan integration

To facilitate plan intergration at the subregional level, a number of arrangements would have to be introduced. Periodical meetings of Planning Ministers of the countries from the sub-region could ensure the necessary political commitment. This is the mechanism which has been envisaged by the Conference of the Arabian Peninsula Ministers' of Planning held in Riyadh, Saudi Arabia, in 1979 which decided that the Planning Ministers of the countries (Kuwait, Bahrain, Saudi Arabia, UAE and Yemen Arab Republic) would meet at least once a year to review co-ordination between manpower, industry and infrastructure networks. In addition to a system for exchanging data and studies of common interest, each country is to appoint qualified planning staff within its own institutional framework to concentrate upon matters of regional importance. To follow-up the decisions of the meeting of the Planning Ministers, a permanent secretariat is to be established within Saudi Arabia's Ministry of Planning.

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(2) Joint ECWA/FAD Agriculture Division. A Study of Sub-Regional Agriculture Plan Harmonization and Integration (The Syrian Arab Republic and the Hashemite Kingdom of Jordan).



## FOOD INDUSTRIES IN THE ECWA COUNTRIES\*

### I. INTRODUCTION

No specific topic has attracted so much attention during the past decade as has the topic of food security in the Arab Countries 13 of which are members of the Economic Commission for Western Asia. The development of the food industry in the ECWA countries, is an important step towards the achievement of this goal. It calls for an action development programme emphasizing industrial processing of foodstuffs and the development of an agricultural resource base. The successful functioning of the food industry also depends upon its effective linkages with complementary activities such as chemical and packaging industries and the marketing infrastructure.

Today, in the ECWA countries, there are numerous food industries which have developed as a result of social and economic development peculiar to each member country. Changes in life style and in food consumption trends, especially since women have entered the job market, are among the important determining factors.

### II. AGRICULTURAL PRODUCTION

The ECWA countries produce a variety of agricultural products, including both crops and livestock. The most important product is cereal (Appendix IV, Table 1) and the most important countries for its production are Syria and Iraq. Oil seeds such as sesame, sunflower, peanuts and cottonseeds are produced in small quantity in various ECWA countries, again with Syria and Iraq as leading producers. Fruits are produced in all countries of the region, with production of citrus fruit and dates occupying the leading position. The region also produces substantial quantities of vegetables, meat, eggs, fresh milk and fish with Syria, Oman, Iraq and Democratic Yemen occupying leading positions in the production of these food items. With the exception of dates and fish production, most of the agricultural production barely meets consumption.

### III. FOOD CONSUMPTION IN THE ECWA COUNTRIES

Until the early 1960's the dominant pattern of food consumption in the ECWA countries favoured cereals, wheat in particular, followed by meat, animal and vegetable fats (such as olive

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\*Prepared by Dr. Falah Jabr, Arab Federation of Food Industries (Original in Arabic).

oil in Mediterranean countries), sugar and dairy products, especially cheese. However, in the past twenty years food consumption patterns have changed for a number of reasons such as rising incomes and large-scale migration to urban areas. This change has brought new products on to the local markets and food industries were established to meet new demands.

#### IV. FOOD INDUSTRIES IN THE ECWA COUNTRIES

Among the ECWA countries, Syria, Lebanon and Iraq had established some food industries as early as the forties which produced olive and cotton seed oil and processed grain products, dairy products and confectionary. The food industry at that time had a limited productive capacity with villages processing food products to meet farming and local marketing needs. From the early fifties until the early sixties owing to a limited growth in the absorption capacity of the local markets, activities remained confined to limited modernization of existing laboratories and the establishment of new factories, partly with external financial and technical assistance. This included the establishment of dairy products, confections and soft drinks industries.

Practical measures for agricultural development undertaken by many countries of the ECWA region in the early seventies resulted in significant increases in fruits and vegetables production and exploitation of sea-based food resources. Rising oil prices and government involvement in the food industry were factors which led to large investments for the expansion of the food industry in the region.

In the beginning the ECWA countries pressed for the development of food industries in (a) the manufacturing/processing of surplus agricultural production; (b) the creation of additional employment particularly in Syria, Lebanon, Jordan and Yemen; and, (c) stemming the tide of urban migration by offering peasants good prices for their products.

To create incentives to develop the agricultural sector further, some ECWA countries have encouraged the expansion of the food industry even though the requisite supply of domestically produced agricultural products is not yet available. The expansion of the food industry in these countries, thus continues to rely on the import of all its needs including raw materials and labour.

Despite the widespread range of food industries located in the region, the planned linkage effects of farm output and employment has not occurred. However, some countries have shown improvement towards the development of sources of raw materials such as milk, vegetables, fruit and fish.

This article attempts to analyse the development and growth of major food processing enterprises in the countries of the ECWA region. Among these, the most important are the dairy and vegetable oil industries, the canning, dates processing and sugar industries.

#### V. DAIRY INDUSTRY

The dairy industry is one of the oldest food industries in most countries of the region. Since the mid-seventies it has shown both qualitative and quantitative improvement in response to increased demand for dairy products in the region. Despite the fact that most countries of the region have milk-producing animals, milk production does not meet demand.

Milk production is affected by the following factors:

1. One of the causes of low productivity of milk-producing animals is the absence or lack of effective veterinary assistance services and the lack of modern animal husbandry management practices among the farmers.

2. Lack and absence of marketing infrastructure to collect surplus milk from the rural areas.

3. A limited and weak infrastructure for scientific research to help facilitate the development and adoption of more productive strains of dairy animals under local conditions.

4. Paucity of technically skilled manpower particularly to meet the requirements for middle level technical cadres.

The dairy processing technology in the countries of the region is import-based. As a result the industry suffers from problems in maintenance and in securing spare parts as well as from a lack of technical cadres. Moreover, a large part of the industry does not operate at its designed capacity. The main problem is in packaging. Since most materials required, except those made from glass, are imported, these therefore represent a high percentage of the production cost. This calls for policies and appropriate incentives to encourage the development and location of auxiliary industry in the private sector.

A wide range of dairy products produced in most countries of the region depend on raw materials like powdered milk, which are largely imported. The exceptions are Syria, Iraq and Saudi Arabia where the industry's needs are met from domestically produced milk. Nevertheless, all the countries of the region are relying on imports to expand their dairy industry.

### Jordan

Jordan has 41,200 cows, 773,000 sheep, 480,900 goats and 18,000 camels. The average milk production per cow in Jordan is relatively high at 1,150 kilograms per year. The average Jordanian per capita consumption of milk and its products is close to 61 kilograms per year. Jordan owns 16 small and medium dairy factories which employ 403 technicians and workers. In addition, there are several simple small plants which are manually operated. About 48 of these are located in villages in rural areas. Besides the dairy processing plants, there are two major companies which operate with a substantial productive capacity on modern lines and rely on imported raw materials. The most important dairy products in Jordan are pasteurized milk, flavoured milk, yoghurt, Labna (curd cheese), cheese and ice cream.

### United Arab Emirates

The United Arab Emirates has 120,000 sheep, 310,000 goats, about 4,000 cows and 34,000 camels. In Ras Al-Khaima Emirate, there is a major project for the production of milk from imported Friesian cows. There are five modern factories for dairy products in the United Arab Emirates which are located throughout the major Emirates and produce ice cream, pasteurized milk, yoghurt and soft white cheese.

### Bahrain

Bahrain's possesses relatively few milk-producing animals. It has 5,000 cows, 4,000 sheep, 8,000 goats and 12,000 camels. Bahrain has one modern dairy plant with a productive capacity of 72 million litres per year, and a work-force of 99 technicians and workers. The total milk production in Bahrain does not exceed 6,970 tons which represents less than 30 per cent of domestic demands.

### Kuwait

The milk-producing animal wealth in Kuwait does not exceed 7,000 cows, 100,000 sheep, 80,000 goats and 6,000 camels. Kuwait has the leading per capita consumption of milk and milk products in the region. The industry has largely developed during the last decade. Several large dairy farms were established to boost the domestic production of raw milk. There are also numerous small factories for milk products.

### Saudi Arabia

Saudi Arabia has 180,000 cows, 1,350,000 sheep, 765,000 goats and 602,000 camels. Saudi Arabia plans to produce 34 per cent of the country's domestic needs by 1985, although dairy production has already witnessed rapid development. Today Saudi Arabia possesses 20 large dairy factories.

Syria

Syria has a substantial wealth of milk-producing animals, largely sheep and goats who together produce approximately 47 per cent of the country's total milk production. Difficulties in the collection and transportation of raw milk due to the absence of a requisite infrastructure are some of the major factors constraining the pace of development in the dairy sector. At present there are three major factories in Damascus, Homs and Aleppo.

Iraq

Iraq's milk-producing animal wealth is estimated at 2,500,000 cows, 221,000 buffaloes, about 12,000,000 sheep and 3,500,000 goats. The modern dairy industry was established after 1958, but did not really begin to expand until after 1970 when the Government established several modern plants throughout the country. Today both the state and the private sector are involved in the dairy industry with the latter relying on imports.

Qatar

Qatar has a very limited number of milk-producing animals and up to 1974 Qatar relied totally on the import of its dairy products needs. The factory which was established in 1974 has a low productive capacity of 15,000 litres per day and relies on imported raw materials. There are currently two projects being built to produce raw milk and dairy products.

Yemen

Yemen's milk-producing animal wealth consists of cows, sheep and goats. Until the mid-seventies there was no modern dairy plant in operation and today Yemen still imports most of its needs. However, the industry has made a good start in the governorate of Hudaida with the establishment of two modern factories. The first dairy plant went into operation in 1979 but operates at only 60 per cent of its productive capacity of 100,000 litres per day. The second factory relies on the production of government-subsidized, milk-producing farms.

Peoples Democratic Republic of Yemen (PDY)

Democratic Yemen has both limited milk-producing animal wealth and a limited domestic demand for dairy products. Even its one major factory in Aden is operating below full capacity.

## VI. VEGETABLE OIL INDUSTRY

The vegetable oil industry in the ECWA countries began in the early fifties and can be classified into two categories. In Iraq and Syria the factories are engaged in all stages of vegetable oil production while in Dubai, the United Arab Emirates and Yemen the factories are limited to refining and packing operations. In Syria, Iraq and Yemen, the industry is run by the public sector.

Iraq

The vegetable oil industry in Iraq is considered one of the more advanced food industries in Iraq. It currently relies on imported seeds. Public sector production represents 98.5 per cent of overall vegetable oil production in Iraq; the private sector owns a small factory with a productive capacity of 2,000 tons per year.

Syrian Arab Republic

There are five edible-oil companies in Syria which are all supervised by the public sector and operate in the field of pressing cotton seeds, the extracting of oil, and the manufacturing of vegetables butter and margarine.

TABLE 1: VEGETABLE OIL PRODUCTION IN SYRIA

Name of company	Maximum capacity in one day	Actual capacity in one day	Actual capacity in 300 days	Average pressed seeds during the past 5 years
Halab edible-oil company	583	525	157,000	145,000
Hama oil company	67	60	18,000	16,000
Homs oil factory	95	80	24,000	17,000
Damascus oil company	71	66	19,800	16,000
Lattakia oil company	54	45	13,500	13,000
Total	870	776	233,800	207,000

SOURCE: Secretariat of the Arab Federation of Food Industries (AFFI).

Lebanon

According to data made available by the Ministry of Finance and by the Lebanese Industrialists Society, there are eight establishments which undertake the pressing and extracting of oil from oil seeds and also process hydrogenized vegetable oil, artificial butter and margarine. There are two factories located in the governorate of Beirut, four in the governorate of Mount Lebanon and two in the northern governorate.

The recent events in Lebanon had a significant effect on this industry. Due to damage caused by recent events, at least four factories have completely shut down their operation and other continue to operate at only 25 to 50 per cent of their actual capacity.

Yemen

The vegetable oil industry in Yemen is based on the extraction of vegetable oil from cotton and sesame seeds and on the refining of raw edible oil. Small national oil pressing factories are spread throughout the country to provide self-sufficiency in edible oil. Major projects operating in this sector are limited to two main establishments; one of them is the Ginning and Cotton Seeds Company in the governorate of Sana'a which has been in operation since 1977. The other main project is located in Ta'ez.

Democratic Yemen

Democratic Yemen owns three cottonseed oil-extracting factories as shown in table 2.

TABLE 2.

Name of the factory	Location	Maximum production capacity per year
1. The oil seeds pressing factory	Al-Mo'la at the first governorate	8,000 tons of cotton seeds
2. The Korean factory	Third governorate	10,000 tons of cotton seeds or 1.7 tons of sesame seeds
3. The vegetable oil factory	Al-Mansura industrial region	12,000 tons of cotton seeds 6,000 tons of sesame seeds
Total productive capacity		30,000 tons of cotton seeds or 7,700 tons of sesame seeds

The vegetable oils factory is equipped with modern machinery and was established in the industrial region of Mansura with the co-operation of Germany. Besides, there are about 474 small sesame oil extracting units in operation and which are distributed throughout the republic.

#### Jordan

There are 115 oil pressing factories in Jordan which press olives and sesame seeds, of which 97 are machine-operated and 18 are animal-operated. There is only one margarine factory which is in the city of Nablus in the occupied West Bank. One of the industry's major problems is the paucity of raw materials as a result of the decrease in the country's agricultural area. In view of this fact, the Jordanian Government has planned for the establishment of two agricultural projects. The first one is concerned with the development of irrigated agriculture in the Jordan Valley and the second aims at increasing the area which could be cultivated with olive trees.

#### The United Arab Emirates

There is no vegetable oil industry in the United Arab Emirates because of the unavailability of locally produced raw materials needed for this industry and lack of skilled manpower. Only recently, a vegetable factory was established in the Emirate of Dubai which refines and packs imported raw oil by using a very simple technology. Its productive capacity is extremely limited and is operated with the help of a foreign workforce.

### VII. CANNED FOOD INDUSTRY

The canned food industry was first established in the early seventies in ECWA countries. Today the industry faces a number of problems including lack of skilled manpower and lack of uniform specification with regard to production technology. Another has been fluctuations in the availability of both domestic and imported raw materials. In all the countries of the region the industry is fairly limited with the exception of Lebanon and, to some extent, Saudi Arabia. In Lebanon there are nine modern factories specialized in the large-scale production of canned fruits and vegetables. Most of the factories are located in Beirut and its outskirts and though not damaged in the fighting, they face difficulties in acquiring raw materials. Moreover, they do not operate at full capacity because of lack of adequate markets and competition from imported foreign products. Saudi Arabia counts over 20 factories engaged in the production of fruit juices, date packing etc., with an average of 37 workers. In Syria the public sector controls the industry through three major establishments while in Iraq several factories have been established since 1970 close to the source of



fresh raw materials for the production of tomato paste, jam, vinegar, fruit juices etc.

### VIII. DATE INDUSTRY

The date industry is an important one in the Middle East and dates serve as a basic input for several food and fodder industries including molasses, liquid sugar, alcoholic products and vinegar. The cultivation of palm trees serves an important function in that it helps to limit desertification. The accompanying table shows the production of dates in selected countries of the region.

TABLE 3: DATE PRODUCTION AND AVERAGE YIELD PER DATE TREE IN SELECTED ECWA COUNTRIES

(in tons)

The country	1969-1971	1977	1978	1979	Average yield per date trees 1971-76 (kilos)
Iraq	410,000	578,000	389,000	392,000	19.3
Saudi Arabia	228,000	382,000	350,000	357,000	36.3
Yemen	60,000	76,000	67,000	67,000	-
Oman	44,000	50,000	50,000	50,000	27.0
Democratic Yemen	41,000	41,000	42,000	42,000	32.4
United Arab Emirates	8,000	30,000	39,000	39,000	-
Kuwait	-	1,000	1,000	1,000	-
Total production in the Arab world	1,561,000	2,043,000	1,909,000	1,926,000	-
Total production in the world	2,116,000	2,672,000	2,567,000	2,567,000	-

SOURCE: AFFI

### IX. SUGAR INDUSTRY IN ECWA COUNTRIES

Physical conditions in ECWA countries are not ideally suited for sugar production. The industry also faces problems on a number of counts. Firstly, from lack of machinery and lack of knowledge among farmers in the application of modern cultivating techniques. Secondly, most harvest losses are considerable due to poor transportation and storage facilities. Thirdly, lack of raw sugar supply or fluctuations in its availability to factories has resulted in gross under utilization of available

industrial capacity. Inefficient operation and maintenance of the plants by workers has also affected production.

#### X. PROSPECTS FOR FOOD INDUSTRIES IN THE ECWA COUNTRIES

The whole realm of agriculture in ECWA countries presents a bleak picture. Despite all the efforts which were exerted throughout the past decade to expand the agricultural sector to meet rising demand for food and raw materials for the food industry, production has been unable to meet rising demand (Table 4). Indeed during this period dependence on food imports has been growing with million of dollars being spent every year on an increasingly costly food bill.

TABLE 4.

Type of commodity	Percentage increase in production	Percentage increase in demand
Grains	1.7	4.6
Sugar	2.9	6.4
Oil-producing crops	1.8	4.1
Fruit and vegetables	3.4	4.6
Livestock products	3.4	5.7

SOURCE: AFFI.

The food industry in the region is therefore characterized by the following:

- Low productivity which makes the industry incapable, except in some rare cases, of competing with its counterparts in developed countries.

- Most sectors of the food industry in the region were established to substitute for food imports.

- Almost total reliance of the industry on foreign technology and advisory engineering services has hampered the possibility of rapid growth.

- The administration responsible for operating the factories has been inefficient.

- The lack of research and development facilities in most industrial enterprises are a major obstacle to the growth of the food industry.

- Food industry of the region is marked by inadequate technology and lack of co-ordination within and among various industries.

- The importance of the food industry in relation to other manufacturing industries varies among the ECWA countries. For example, this industry represents 55 per cent of all the industries in Democratic Yemen, 38.3 per cent in Yemen, 35.1 per cent in Iraq, 32.8 per cent in Jordan and 20.9 per cent in Syria, whereas it represents no more than 5.3 per cent in Kuwait and 11.1 per cent in the United Arab Emirates.

Given the above situation the following remedial steps are suggested to redress the problems in the food industry:

- The provision of qualified personnel is the cornerstone for the development of this industry. This requires technical education and teaching programmes in the institute/universities responsible for the supply of trained manpower.

- Monitoring and evaluation of ongoing agricultural development projects.

- Consideration should be given to specialization in agricultural production which is directly linked to the development and growth of the food industry in the region. This calls for the immediate establishment of applied and scientific industrial research centres and reference centres.

- Joint efforts between Arab Organizations and ECWA should be exerted to identify and determine joint projects in the area of food production and carry out technical and economic feasibility studies to be submitted to concerned governments, as well as Arab Development Funds so as to direct investments towards the food industry.

- The establishment of new industries such as a coffee industry in Yemen, a meat industry in Saudi Arabia to meet demand during the Haj, and the expansion of the dates industry in Iraq. These new industries could be modernized and other complementary industries could subsequently arise.

- The establishment of specialized research centres in the field of packing and packaging and the development of new methods to utilize surplus local raw materials.

## COMBAT OF DESERTIFICATION IN THE ECWA REGION\*

Alarmed by a rapidly deteriorating agricultural resource situation reflected in widespread food shortages and famines and growing desertification over a large surface of the earth, the nations of the World have convened a United Nations Conference on Desertification (UNCDD) in September 1977, which adopted a Plan of Action to Combat Desertification (PACD) to be implemented by the year 2000. This Plan of Action had also set a short-term horizon: between 1978-1984 the most pressing tasks to remedy the situation were to be implemented and by 1984 a first general assessment of the progress achieved is to be made. 1984 is, therefore, to be a year of stocktaking.

The assessment, which is to be presented to the twelfth session of the Governing Council of UNEP during May 1984, is based on the following sources: the questionnaire circulated by UNEP to 91 effected countries and 12 concerned donor countries, 26 country reports, updates of 3 out of 6 case studies and 5 out of 9 associated case studies to be presented to UNCDD. Additional materials are prepared by various United Nations organs and agencies; regional assessments are made by ECA, ECWA and ESCAP on their respective regions on the status and trend of desertification. A detailed regional study is also made by UNSO assessing desertification in the Sudano-Sahelian region.

Based on the information contained in the above, three support documents are prepared: 'Global Assessment of the Status of Desertification'; 'Evaluation of the Effectiveness of Implementation of the Plan of Action to Combat Desertification' and 'Review of Actions Taken to Finance Implementation of the Plan of Action: Financial and Institutional Arrangements'.

### Combat of Desertification: Global Perspective

Since the 1977 United Nations Conference on Desertification (UNCDD) formulated the Plan of Action, desertification has accelerated significantly. The assessment has only confirmed the scale and urgency of the problem. Desertification now threatens some 35 per cent, or 45 million sq. kms, of the earth's surface and 20 per cent of its population totalling 850 million people. Worldwide some 6 million hectares of land are being lost every year, while since 1977 a total of 36 million hectares have been reduced to desert-like conditions.

The process of desertification involves such elements as widespread decline in soil fertility and soil structure, loss of

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\* Prepared by the Joint ECWA/FAO Agriculture Division with the assistance of Desertification Branch of UNEP, Nairobi.

nutrients and organic matter, surface crusting, accelerated sheet and gully erosion, increased wind erosion and flooding, and siltation in the valleys and a generally deteriorated soil-water balance.

The UNEP assessment found that three-quarters of the 45 million square kilometres that make up the world's drylands, and 60 per cent of their population, are already affected by desertification, a large proportion either severely or very severely. Desertification in these regions is accelerating, particularly in areas where traditional agricultural practices prevail. Here the problem is closely linked to poverty, and often to inequality of access to resources and conservative resistance to change. Deforestation is one of the prime factors responsible for ecological decline in these areas which include South Asia, Africa, Latin America and the ECWA region. Another important factor is increasing population pressure on the land.

The UNEP assessment found that the problem of desertification was most serious with regard to grassland, rangeland as some 3.1 billion hectares of rangelands are now affected by desertification, an area almost as large as North and South America combined. It also found that desertification of grasslands is intensifying on account of overgrazing and poor range management. Furthermore, in many developing countries, including the ECWA region, these areas are having to support an increasing number of livestock.

Some 3.5 billion hectares of the world's grasslands, rainfed croplands and irrigated lands are affected by desertification, with 21 million hectares a year being reduced to near or complete uselessness. Unless prompt and effective action is taken, the situation will be much worse by the year 2000, further constraining the global search for food self-sufficiency.

Irrigation is often seen as one of the prime solutions for the world's drylands and since the sixties billions of dollars have been invested in irrigation schemes. It was regarded as the remedy against declining productivity and rapid population increase, but due mainly to bad planning and poor engineering, irrigation itself has in turn become a major cause of desertification.

Globally, more than 250 million hectares of land are under irrigation, and an equal area has the potential for irrigation but irrigation is expensive and where it is not well designed and implemented it often fails. For example, the assessment found that 40 million hectares of irrigated land is now affected by desertification mainly as a result of salinization and waterlogging.

But the fact that human actions are responsible for desertification raises the prospect that human action can also halt it.

Both the causes of desertification and the solutions are known. These are tested solutions which in some areas have been applied and found to work well. What remains is to apply them on the required scale. But the UNEP assessment found that in the ECWA countries and throughout the world's drylands, the known solutions are not being applied on the scale, or at the speed, required to address the problem.

The assessment has once again underscored the need for an integrated approach to dealing with desertification which up to now has been lacking. The tendency in most of the developing countries, including ECWA, is towards piecemeal, low priority solutions which do not work.

The assessment shows that the UNCCD goal of halting desertification by the year 2000 is no longer feasible. Not only is desertification increasing but progress in applying the Plan of Action everywhere has been too slow and in too small a measure.

The seven years since UNCCD have led to more thorough understanding of the causes and impact of desertification. The main agents of destruction are overcultivation, overgrazing, poor irrigation practices and deforestation.

The assessment also shows that the Plan of Action is still essentially viable - and even more relevant now than in 1977. The awareness it stimulated and the resulting national and international action to control desertification has prevented the situation from deteriorating still further. The findings of this assessment to be presented to a special two-day session of the UNEP Governing Council in Nairobi (May 17-18), along with a set of practical recommendations which, if applied properly, could go a long way towards slowing the desertification process by the year 2000.

#### Combat of Desertification in the ECWA Region

In the 13 countries comprising the Economic Commission for Western Asia (ECWA), the whole area is affected by desertification, two thirds severely or to an even greater extent.

The ECWA countries are especially prone to desertification due to their aridity and fragile ecological conditions. Most of the region has very low annual rainfall concentrated in three or four months of the year. Scarcity of water therefore limits agricultural, pastoral and forest production. It is a region where ecological damage is extremely difficult to reverse.

The region's total land area of 4.7 million square kilometres forms three distinct parts: the Fertile Crescent comprising Iraq, Jordan, Lebanon, Syria, has large semi-arid, sub-humid and desert areas watered by large rivers; the Arabian Peninsula, consisting mainly of arid and hyper-arid lands, is generally

deficient in rainfed croplands or large irrigable tracts; Egypt is almost entirely hyper-arid with all agriculture based on irrigation.

In ECWA countries desertification has been exacerbated by rapid rates of population growth without a compensatory rise in technology and farm inputs. The traditionally low ratio of per capita arable land is declining rapidly and, for the region as a whole the ratio declined from 0.30 hectare in 1961 to 0.18 hectare in 1978. In the last seven years this trend has intensified, and per capita ratio of arable land is now less than 0.15.

The population of the region is estimated at 100 million constituting about 11.7 per cent of the world's dryland population. The present figure is up from 95 million in 1931 and 80 million in 1972 constituting an annual increase of over 2.5 per cent. The present demographic trend can be expected to continue till 2000 and beyond.

In recent years livestock numbers have increased in the region and there has been a sharp reduction in good quality grazing land in marginal rainfall areas, partly because of increased cultivation despite crop failures.

National governments have become increasingly aware of the alarming dimensions of such degradation and have shown greater willingness to give more priority to halting the process. Responses include protection of grazing land by fencing, improving the management of such lands, improving water supply, settling pastoral nomads, introducing co-operatives to handle improved livestock production and passing appropriate legislation to protect these areas. Nevertheless, as the assessment shows, these measures have not succeeded in effectively slowing down the pace of desertification because they have either not been sufficiently comprehensive or applied rigorously enough.

In human and economic terms, the repercussions of desertification are most serious in rainfed croplands since here desertification threatens the largest number of people. As is the case in most of the developing world, in the ECWA region rainfed cropping is still the predominant mode of agriculture providing employment for the bulk of the population.

In the ECWA region the worst affected areas are the semi-arid and sub-humid areas of the Fertile Crescent, particularly the uplands, the highland and midland areas of the Yemen Arab Republic.

The region has unreliable rainfall, light soils highly prone to erosion; furthermore land use and land tenure systems discourage investment, innovation or conservation.

Public response to soil erosion and soil degradation varies throughout the ECWA region depending on the intensity of the problem and local financial and technical resources. Many engineering projects designed to promote more efficient use of water resources have been constructed or are in the planning stages. Other measures include regeneration of plant cover and introduction of practices aimed at minimizing soil and water losses. But so far, efforts to combat soil erosion problems are localized and have made a limited impact.

Forests and woodlands occupy only 7.8 million hectare or 1.6 per cent, of the ECWA region's land area. Three-quarters of this is located in highland areas of Saudi Arabia and the two Yemens. The formerly wooded areas of the Fertile Crescent have been largely cleared, a process which is still continuing and which has contributed significantly to accelerated desertification. Many countries are carrying out afforestation programmes, but these are only a fraction of what is needed. The UAE is investing large sums in afforestation using water-saving drip-irrigation techniques. Syria replanted over 20,000 hectare between 1978 and 1983. Jordan has planted about 20,000 hectare of forests and established a training institute for forest protection and management.

All governments in the ECWA region have formulated laws - or are in the process of doing so - to curb unauthorized clearing of trees. The challenge for the authorities is to see that they are applied. Several governments have also passed legislation to control the cultivation of marginal grasslands.

Desertification of irrigated lands in the ECWA region is directly linked with rising and increasingly saline water tables due to imbalances caused by irrigation coupled with inadequate surface drainage. An estimated 50 per cent of irrigated land in the Euphrates Valley in Syria is affected by salinity and the problem is of a similar magnitude in Iraq, while in Egypt's Nile Valley 30 per cent of irrigated lands suffer from salinization and waterlogging in various degrees. Thus, highly productive land is being lost to desertification in Egypt, Iraq and Syria. While it is true that more land is being brought under cultivation, but again, perhaps just as much is being lost.

Perhaps the future holds better prospects for this region. In addition to the fact that technical solutions to the problems of desertification are available, the region is known for its wealth, determination to achieve social and economic development and seriousness in implementing sustainable solutions to chronic problems. UNEP in collaboration with United Nations Economic Commission for Western Asia stands ready to join hands with the Governments individually and collectively so that the menace of desertification and the problems it brings to the people of the region are alleviated in the future.



### ECWA's Work Programme

The foundations for the secretariat's work in the area of agricultural resource management and desertification control were laid, in the context of ECWA resolution 71(VI) of 1979, with the holding of an Expert Group Meeting on Management, Conservation and Development of Agricultural Resources in the ECWA Region in May 1981.

In a follow-up to this meeting, seven project proposals dealing with different aspects of desertification control were prepared and presented to a donor for bilateral financing. The secretariat has further pursued the recommendations of this meeting through the UN Inter-Agency Working Group on Desertification and has regularly participated in its biannual meetings for the purpose of programme development and for co-ordination and streamlining its activities with those of other UN agencies.

Other important activities completed by the secretariat during 1982-1983 were:

(i) At the request of UNEP, a paper on Planning for Integrated Agricultural Resource Management and Development in the ECWA Region was prepared, which was published in UNEP's biannual journal Desertification Control, No. 8 (June 1983).

(ii) A document on the Status and Management of Agricultural Resources in the ECWA Region was prepared for the UNEP/USSR monograph Desertification: Scientific Fundamentals and Strategies of Control.

(iii) A study on Regional Assessment of Desertification in the ECWA Region was completed. This study, which is prepared in the context of UNEP's first general assessment of progress in implementation of the Plan of Action to Combat Desertification (UN-PACD), examines the current status of desertification in the ECWA region using various physical indicators; assesses the progress in implementation of UN-PACD using different socio-economic indicators; delineates the general trend in desertification in the ECWA region by major land use types, and identifies measures to combat desertification.

(iv) A case study on Agricultural Resource Management and Desertification Control in Iraq was completed. This study examines the physiographic, climatic and phytogeographic features of Iraq and its water resources potential and assesses the state of the use of current agricultural resources and the extent and rate of desertification. The study also identifies constraints confronting agricultural development in Iraq and outlines an action programme for the enhancement of agricultural production and control of desertification.

(v) A study on pastoral and livestock management systems and strategies in the ECWA region has been completed. The study reviews and synthesises varied approaches and practices applied in range and livestock management in the ECWA region, outlining points of successes and failures; examines in depth the problems faced by nomadic livestock breeders; outlines measures for the overall improvement of range-livestock system of the ECWA region and identifies a number of technical assistance projects.

(vi) The Joint ECWA/FAO Agriculture Division participated in an inter-agency technical programming and project formulation mission launched by UNEP to Jordan. This mission, in addition to developing strategic guidelines for grasslands development in the eastern low rainfall areas of Jordan, developed a range rehabilitation project for the Lajjun area in south-eastern Jordan.

(vii) An analysis of ECWA programmes having a bearing upon desertification control was carried out for the UN Compendium of desertification project and programmes.

(viii) Technical assistance was rendered to UNEP towards preparation of a field manual on economic analysis of desertification control projects.

#### Proposed Future Action by ECWA

The secretariat's work in this field over the past few years indicates that in view of limited resources available under the regular budget, it would be appropriate, on the one hand, to emphasise the secretariat's work in only a few crucial areas and, on the other, to make concerted efforts to mobilise extra-budgetary resources.

The two crucial areas on which the secretariat should concentrate in the future are:

- (a) provision of direct assistance to countries in the formulation of comprehensive national plans of action to combat desertification and in the preparation of specific projects; and
- (b) establishment of a network for the exchange and dissemination of information between countries and between regions on desertification control approaches, methodologies and techniques.

Of the seven project proposals presented by the secretariat for bilateral financing during 1982, only one relating to a study on pastoral development and range management strategies is in the process of being funded by the Federal Republic of Germany. The financing of the remaining six project proposals will greatly strengthen the secretariat's programme in this field. These project proposals are:

(i) A feasibility study on the establishment of a Regional Desertification Communication and Development Support Centre (\$35,000).

(ii) An expert meeting on Desert Afforestation in the ECWA region, based on U.A.E.'s experience (\$45,000).

(iii) A case study on Economic Analysis of Conservation Action or Desertification Control (\$51,000).

(iv) A regional workshop on Multiple Resource Use Management Systems (\$75,000).

(v) A training course on Land Use Planning in Natural Resource Management (\$115,500).

(vi) A study on Risk Management in Arid Zone Agriculture (\$22,000).

PART THREE

MEETINGS IN THE FIELD OF AGRICULTURE CONVENED BY ECWA

REPORT OF THE EXPERT GROUP MEETING ON THE REVIEW OF EXPERIENCES  
WITH RURAL DEVELOPMENT PROJECTS IN COUNTRIES OF  
WESTERN ASIA

(Baghdad, September 1983)

ECWA had taken an active part in the implementation of the WCARRD Programme of Action. The Commission considered at its Seventh Session (1980) the issue of agrarian reforms and rural development and adopted Resolution 82(VII) calling, inter alia, for increased priority to rural development and an expanded programme of rural development activities. In accordance with this Resolution the ECWA Secretariat, in its 1982-83 Regular Work Programme, had intensified its activities in this field.

By their very nature rural development projects were varied and complex and thus difficult to plan and implement. In order to identify, outline and evaluate the factors - economic, technical, human and institutional - that impeded the realization of planned rural development objectives, ECWA held an Expert Group Meeting to Review the Experiences with Rural Development Projects in Countries of Western Asia in Baghdad from 29 September to 2 October 1983. More specifically the aims and objectives of this expert meeting were:

(i) to study, analyse and draw lessons from the experiences gained with rural development projects, including the identification and dissemination of innovative experiences in design, implementation and monitoring of agrarian reform and rural development projects;

(ii) to sort out priorities for action and to propose options and concrete measures, including specific technical assistance projects, in support of both national projects and policies for agrarian reform and rural development; and

(iii) to contribute to the elaboration of a suitable approach in the implementation of ECWA's work programme in agrarian reform and rural development in support of governmental projects and policies towards the alleviation of rural poverty.

The deliberations of the meeting were based on six national case studies concerned with reviewing the experience of rural development projects. Out of these, FAO contributed a case study on the Yemen Arab Republic and financed two others on Egypt and Iraq. The remaining three case studies and an overall synthesis paper relating to major issues in agrarian reform and rural development were prepared by the ECWA Secretariat with the financial assistance of the Government of the Netherlands. In addition, two papers on FAO's action programme for agrarian reform and rural development and monitoring and evaluation of

rural development projects were presented by FAD and IFAD respectively.

In-depth deliberations by participating experts on the issues facing rural development projects led to the following observations and recommendations:

1. The meeting viewed rural development as a strategy designed to alleviate rural poverty with the active participation of the low-income rural population and the fullest possible reliance upon local institutionalised initiatives keeping in view the different resource mix of ECWA countries. The concept of rural development needed to be operationalized keeping in mind the following:

- rural development projects must be formulated in the context of an overall rural development plan for the country, which in turn should form an integral part of the national development plan;
- there being no universal model of rural development, each country had to formulate its rural development plan, based on its resource mix and national priorities;
- rural development projects and programmes should emphasise increasing agricultural production in order to increase the incomes of the beneficiaries and to achieve the national food security objectives of the countries of ECWA and the Near Eastern regions. However, this was not to be achieved at the expense of social welfare objectives;
- in some situations, substantial restructuring of the agricultural resource base would be essential to achieve the twin objectives of growth and equity;
- in order to reduce selective rural-urban and inter-rural migration and to achieve a balanced national development, there was a need to develop adequate physical and social infrastructures and to create employment opportunities in the rural setting, including part-time farming.

2. The meeting felt that rural development projects and programmes could not be successful without a set of clearly defined operational policies, which actively promoted the welfare of the rural masses, especially the following:

- price policies for agricultural inputs and outputs, including subsidies on production and consumption aiming at increased agricultural production and a better balance both between urban-rural incomes and within the rural sector itself;

- land tenure policies aiming at strengthening of the agricultural production base;
- land use policies both technical and economic;
- policies aiming at the mutual reinforcement and interlinking of research systems, delivery/extension systems, and receiving systems;
- policies which augment manpower, entrepreneurial and management capabilities for an effective utilization of natural and human resources of the rural areas. (In this connection the programme of land distribution to agricultural graduates in Iraq was specifically mentioned.)

3. The meeting highlighted the following specific issues and recommended that measures ought to be taken for their resolution:

- the gap between planned targets and achievements which stem from:
  - (a) inappropriate design;
  - (b) delays in implementation;
  - (c) fragmentation of responsibilities with regard to planning and implementation functions.
- the relative performance of state farms as compared to co-operative and private farms (ECWA was urged to conduct an in-depth study on the relative efficiency of these forms of farm production under different local conditions);
- reassessing the advisability of contracting development projects (planning and/or implementation) to foreign firms without adequate participation of nationals.

4. The meeting recommended that ECWA, in cooperation with other concerned United Nations agencies initiate the following studies:

- the impact of emigration on rural development in labour exporting countries in the ECWA region;
- the extent, form and nature of women's contribution to the actual farm production process and its implication for their participation in social and educational activities;
- a thorough study of socio-economic conditions of the nomadic population and development of desert areas;

- the identification and evaluation of successful and effective experiences in the following components of rural development programmes:

- (a) functional literacy;
- (b) local participation including women's participation;
- (c) irrigation and drainage practices;
- (d) development, utilization and control of underground water;
- (e) agricultural mechanization;
- (f) delivery systems to small farmers including credit and co-operatives;
- (g) action research and agricultural extension, etc;
- (h) organizational and administrative management structures for improved achievement of rural development goals;
- (i) appropriate institutions and mechanisms for participation of beneficiaries in decision making i.e. in project identification, formulation, implementation, monitoring and evaluation;
- (j) practical methodologies for monitoring and evaluation.

5. The meeting recommended that ECWA, in cooperation with FAO, IFAD and other concerned United Nations agencies, launch effective programmes aiming at strengthening the national planning, monitoring and evaluation capabilities for rural development at different levels in ECWA countries. Also in this regard steps ought to be taken to consolidate and disseminate monitoring and evaluation guidelines issued by various United Nations agencies and regional banks. In this connection, the role of national institutions, universities and NGO's should also be defined with a view to promoting their effective participation in national programmes of rural development, particularly in the designing and conducting of practical training programmes for functionaries and the instructors of training institutions.



THE FAO/ECWA INTERGOVERNMENTAL CONSULTATION ON RURAL DEVELOPMENT  
IN THE NEAR EAST REGION AS FOLLOW-UP TO THE WORLD CONFERENCE  
ON AGRARIAN REFORM AND RURAL DEVELOPMENT (WCARRD)

(Baghdad, October 1983)

This Intergovernmental Consultation on Rural Development, which was held in Baghdad from 3 to 6 October 1983, was the first in the ECWA/Near East region, held as a follow-up to the Programme of Action of WCARRD and in response to the decisions of member countries for a continuous monitoring and evaluation of the progress made in the field of agrarian reform and rural development. The objectives of the consultation were:

(i) to review the national agrarian reform and rural development policies and programmes and to assess the progress in the alleviation of rural poverty since the WCARRD (1979);

(ii) to identify the factors which determine the success or failure of agrarian reform and rural development programmes; and

(iii) to propose a common regional position with regard to the formulation and implementation of national policies toward achieving the aims of the WCARRD Programme of Action. The Programme of Action for the WCARRD follow-up involves assistance to member countries of FAO and ECWA in identifying and reviewing policies and programmes and implementing activities aiming at the improvement of their agrarian reform structures and the development of the rural areas.

This Intergovernmental Consultation represented an important step toward the discussion of the issues of rural development at the seventeenth FAO Near Eastern Regional Conference and the eleventh session of ECWA. Moreover, it was hoped that the deliberations of this consultation would lead to the identification of critical areas in programme and policy formulation and implementation which required immediate attention at regional, national and international levels.

After intensive deliberations, the Consultation came to the following conclusions and recommendations:

1. Innovative experiences in rural development projects

The Consultation appreciated the innovative experiences as for example, in the settlement of agricultural graduates in Iraq, Egypt and Sudan or the provision of the same with loans and assistance in Cyprus; the massive literacy campaign of Iraq; Nubian resettlement; the Hema grazing system in Syria; and the regional development approach to rural development in the Jordan Valley, etc. It recommended that the term 'innovative' should be broadly defined as to include all successful and effective

experiences in the context of WCARRD objectives. The Consultation further recommended that the governments of the Near East region should take the initiative to compile and evaluate their successful experiences in the field of rural development and agrarian reform for possible replication elsewhere. FAO was requested to institutionalize the process of identification and evaluation of innovative experiences for dissemination among the countries. These were to be discussed in subsequent meetings organized by FAO, ECWA and other agencies.

## 2. Major land tenure changes

The Consultation noted the slow progress in initiating new agrarian reform programmes in the post WCARRD period and recommended that:

- the governments should proceed more vigorously with programmes of land redistribution, tenancy reforms, land consolidation and allied institutional changes, as adopted by countries in the WCARRD Programme of Action;
- steps should be taken for the independent evaluation of the real impact of the implemented and ongoing agrarian reforms, including their impact on women;
- special emphasis should be placed on speeding up existing measures and adopting new ones for combating fragmentation on farm holdings and different experiences of various countries should be disseminated;
- land reclamation and land settlement schemes need to be evaluated and their benefits used to uplift the rural poor;
- agricultural censuses and sample surveys need to be carried out on a regular basis by all countries and these censuses and surveys should be broadened to cover data on land ownership in addition to data on landholdings.

## 3. Growth with equity

The Consultation appreciated the study presented by FAO on the assessment of absolute poverty in the Near East region and considered it a pioneering analytical approach for the assessment of the relationship between economic growth and the alleviation of rural poverty.

The consultation recommended that this study should be published after updating the data and supplementing the information with a view to widening its scope to include such factors as terms of trade, prices, employment, land market and sectoral flow of resources.

The Consultation also recommended that the analytical framework used should be a model for studies undertaken by individual countries with the possible assistance of FAO/ECWA and that their results should be examined in a follow-up meeting.

#### 4. People's participation in rural development

The Consultation fully endorsed the need for measures to promote effective people's participation, both in its economic and social content, as an integral part of rural development policies, programmes and projects. It recommended that further steps need be taken for:

- the removal of obstacles in the way of the rural poor in order to improve their economic and social conditions through their own organizations;
- decentralization of government services to local levels;
- increasing the access of the rural poor including the landless, to productive assets including land and credit;
- facilitating the meaningful participation of rural women in farm production and rural institutions;
- the promotion of NGOs in the rural areas to mobilize local development initiatives to meet their own needs and the organization of a meeting on the participation of NGOs in the field of agrarian reform and rural development.

#### 5. Pricing policies for small farmers

The Consultation noted with satisfaction the studies being carried out on agricultural pricing policies in the ECWA/Near East region which will be discussed at the next FAO Near East Regional Conference. It recommended that such policies should be designed keeping in view farm production/land tenure relations obtaining in the countries and the interests of:

- landless and subsistence farmers, who are net buyers of food;
- nomads who are major producers of livestock and livestock products but who are bypassed by the pricing system; and
- urban consumers.

#### 6. Delivery systems for small farmers

The Consultation noted the management problems arising from the multiplicity of organizations and agencies providing inputs and agricultural services to the diverse categories of farmers and recommended that co-ordination among the delivery agencies should be improved on the one hand, and effectively linked with the receiving system on the other.

The Consultation observed that local government, where appropriate, in addition to instituting accountability, should be trained and tuned to the needs of small farmers and the rural poor.

#### 7. Monitoring and evaluation

The Consultation appreciated the work of IFAD, FAO and other United Nations agencies in promoting the establishment of monitoring and evaluation systems as part and parcel of all agricultural and rural development projects in the Near East/ECWA countries and made the following recommendations:

- The Near East/ECWA countries need to focus on building national capabilities in carrying out monitoring and evaluation activities at the project level, and on using local institutions and expertise within and outside the government in designing and carrying out these activities.

- In the case of large integrated rural development programmes, having components of various agencies, it was necessary to establish suitable coordinating mechanisms to identify a central or "lead" agency that would be responsible for the overall monitoring and evaluation, while the individual ministries or agencies continued to review the progress in the areas of their direct interest and responsibility.

- The consolidation of work and mechanisms for monitoring and evaluation should be viewed as part of establishing or strengthening permanent national capabilities in the countries. This can be achieved through the creation of special units.

- The Consultation recognized the difficulties which certain countries encountered in setting up benchmarks for a period around 1980 and in organizing data collection systems for monitoring and evaluation in the second cycle of the periodic reporting to the 1987 FAO Conference. The meeting agreed that it was necessary for countries to start preparing long-term programmes of integrated censuses and surveys for providing the required indicators as frequently and efficiently as possible and to seek suitable technical assistance for this purpose.

APPENDIX TABLES

Appendix I

TABLE A.1. INDEX NUMBERS AND ANNUAL CHANGE OF PER CAPITA GROSS AGRICULTURAL PRODUCTION IN THE ECWA COUNTRIES, SELECTED YEARS

(1974/76 = 100)

Country	1975	1979	1980	1981	1982	Annual Percentage Change		
						1980	1981	1982
						1979	1980	1981
Democratic Yemen	101	91	90	85	81	- 1.1	- 5.6	- 4.7
Egypt	100	99	99	98	95	0.0	- 1.0	- 3.1
Iraq	95	112	108	108	108	- 3.6	0.0	0.0
Jordan	83	89	117	105	109	31.5	-10.3	3.8
Lebanon	93	108	135	112	128	25.0	-17.0	14.3
Saudi Arabia	105	113	110	110	124	- 2.7	0.0	12.7
Syria	96	95	126	121	120	32.6	- 4.0	- 0.8
Yemen	108	94	93	88	85	- 1.1	- 5.4	- 3.4
ECWA (including Egypt)	99	100	106	103	103	6.0	- 2.8	0.0
ECWA (excluding Egypt)	99	100	112	107	109	12.0	- 4.5	1.9

SOURCE: FAO, Interlinked Computer System (ICS) printouts of production index numbers, November 1983 (unpublished).

## Appendix I

TABLE A.2. INDEX NUMBERS AND ANNUAL CHANGE OF GROSS CROP PRODUCTION  
IN THE ECWA COUNTRIES, SELECTED YEARS

(1974/76 = 100)

Country	1975	1979	1980	1981	1982	Annual Percentage Change		
						1980	1981	1982
						1979	1980	1981
Democratic Yemen	102	101	100	95	91	- 1.0	- 5.0	- 4.2
Egypt	99	111	114	114	111	2.7	0.0	- 2.6
Iraq	87	143	140	136	132	- 2.1	2.9	- 2.9
Jordan	69	82	143	120	134	74.4	-16.1	11.7
Lebanon	90	94	113	91	114	20.2	-19.5	25.3
Saudi Arabia	109	115	108	107	145	- 6.1	- 1.0	35.5
Syria	94	94	144	138	139	53.2	- 4.2	0.7
Yemen	112	99	102	97	95	3.0	- 4.9	- 2.1
ECWA (including Egypt)	98	109	121	118	119	11.0	- 2.5	0.8
ECWA (excluding Egypt)	97	106	129	122	127	20.8	- 4.7	4.1

SOURCE: FAO, ICS printouts of production index numbers, November 1983,  
(unpublished).

## Appendix I

TABLE A.3. INDEX NUMBERS AND ANNUAL CHANGE OF GROSS FOOD PRODUCTION  
IN ECWA COUNTRIES, SELECTED YEARS

(1974/76 = 100)

Country	1975	1979	1980	1981	1982	Annual Percentage Change		
						1980	1981	1982
						1979	1980	1981
Democratic Yemen	101	100	104	101	97	4.0	- 2.9	- 4.0
Egypt	100	108	110	113	113	1.9	2.7	0.0
Iraq	95	129	129	133	139	0.0	3.1	4.5
Jordan	83	103	142	131	141	37.9	- 7.7	7.6
Lebanon	96	107	134	113	132	25.2	-15.7	16.8
Saudi Arabia	105	135	136	142	166	0.7	4.4	16.9
Syria	96	113	160	159	162	41.2	- 0.6	1.9
Yemen	108	101	102	99	97	1.0	- 2.9	- 2.0
ECWA (including Egypt)	99	113	124	124	128	9.7	0.0	3.2
ECWA (excluding Egypt)	99	116	135	133	140	16.4	- 1.5	5.3

SOURCE: FAO, ICS printouts of production index numbers, November 1973, (unpublished).



Appendix I

TABLE A.4. INDEX NUMBERS AND ANNUAL CHANGE OF GROSS PER CAPITA FOOD PRODUCTION IN THE ECWA COUNTRIES, SELECTED YEARS.

(1974/76 = 100)

Countries	1975	1979	1980	1981	1982	Annual Percentage Change		
						1980	1981	1982
						1979	1980	1981
Democratic Yemen	101	91	92	87	82	1.1	- 5.4	- 5.7
Egypt	100	98	97	97	95	1.0	0.0	- 2.1
Iraq	95	113	109	108	109	- 3.5	- 1.0	1.0
Jordan	83	89	118	105	109	32.6	-11.0	3.8
Lebanon	95	110	138	115	132	25.5	-16.7	14.8
Saudi Arabia	105	114	110	110	125	- 3.5	0.0	13.6
Syria	96	97	133	127	124	37.1	- 4.5	- 2.4
Yemen	108	94	93	88	85	- 1.1	- 5.4	- 3.4
ECWA (including Egypt)	100	100	106	104	104	6.0	- 1.9	0.0
ECWA (excluding Egypt)	99	101	114	109	111	12.9	- 4.4	1.8

SOURCE: FAO, ICS printouts of production index numbers, November 1983, (unpublished).

Appendix I

TABLE A.5. INDEX NUMBERS AND ANNUAL CHANGE OF NON-FOOD PRODUCTION (GROSS) IN THE ECWA COUNTRIES, SELECTED YEARS

(1974/76 = 100)

Country	1975	1979	1980	1981	1982	Annual Percentage Change		
						1980	1981	1982
						1979	1980	1981
Democratic Yemen	104	90	75	75	75	-16.7	0.0	0.0
Egypt	95	119	130	122	113	9.2	-6.2	-7.4
Iraq	89	101	103	103	105	2.0	0.0	1.9
Jordan	95	91	116	120	120	27.5	3.4	0.0
Lebanon	71	78	78	68	66	0.0	-12.8	-2.9
Saudi Arabia	109	127	127	129	132	0.0	1.6	2.3
Syria	95	91	88	93	111	-3.3	5.7	19.4
Yemen	106	94	95	95	95	1.1	0.0	0.0
ECWA (including Egypt)	95	110	116	112	110	5.5	-3.4	-1.8
ECWA (excluding Egypt)	95	93	91	93	105	-2.2	2.2	12.9

SOURCE: FAO, ICS printouts of production index numbers, November 1983, (unpublished).

Appendix I

TABLE A.6. AREA, YIELD AND PRODUCTION OF MAJOR FOOD GRAINS IN ECWA REGION, SELECTED YEARS

(Thousand hectares, kilograms per hectare, thousand tons)

Crop		1974/65	1979	1980	1981	1982
Wheat	A	4,061	4,077	3,800	3,309	3,344
	Y	1,276	1,218	1,509	1,654	1,505
	P	5,180	4,965	5,734	5,471	5,034
Barley	A	1,691	2,052	2,176	2,250	2,510
	Y	894	587	1,105	985	568
	P	1,511	1,205	2,404	2,216	1,426
Maize	A	860	920	930	913	714
	Y	3,469	3,463	3,750	3,848	4,105
	P	2,982	3,187	3,488	3,516	2,931
Millet	A	312	264	265	248	245
	Y	2,837	2,771	2,795	3,101	2,738
	P	885	732	741	769	672
Sorghum	A	1,384	1,125	1,149	912	1,039
	Y	705	765	705	805	675
	P	976	860	810	735	702
Coarse grains	A	4,252	4,368	4,525	4,328	4,512
	Y	1,496	1,372	1,646	1,673	1,271
	P	6,361	5,992	7,450	7,241	5,736
Rice	A	485	514	488	482	510
	Y	4,998	5,448	5,393	5,162	5,272
	P	2,423	2,801	2,634	2,487	2,689
Total cereals	A	8,798	8,959	8,814	8,118	8,366
	Y	1,587	1,536	1,795	1,872	1,609
	P	13,963	13,758	15,818	15,199	13,459

SOURCE: FAO, ICS printouts of agricultural production, November 1983 (unpublished).

A: area harvested; Y: yields; P: production

## Appendix I

TABLE A.7. AREA, YIELD AND PRODUCTION OF MAJOR CROPS, OTHER THAN CEREALS IN THE ECWA REGION, SELECTED YEARS

(Thousand hectares, kilogram per hectare, thousand tons)

Crop		1974/76	1979	1980	1981	1982
Lentils	A	164	118	113	101	87
	Y	975	605	953	856	905
	P	160	72	108	86	78
Pulses	A	601	478	553	521	463
	Y	1,174	1,172	1,218	1,142	1,220
	P	705	560	674	594	565
Sugar cane	A	99	111	112	111	113
	Y	80,190	81,395	78,777	79,311	78,125
	P	7,905	9,008	8,811	8,782	8,840
Sugar-beets	A	13	25	36	31	33
	Y	27,574	19,425	19,996	25,419	26,277
	P	347	477	728	787	863
Tobacco	A	44	41	40	39	37
	Y	822	921	1,045	1,012	1,101
	P	36	37	42	39	41
Seed cotton	A	825	692	698	673	630
	Y	1,915	2,396	2,524	2,535	2,637
	P	1,579	1,657	1,762	1,706	1,662
Sesame seed	A	77	76	98	90	94
	Y	605	619	617	613	637
	P	46	47	61	55	60
Tomatoes	A	235	243	253	251	262
	Y	13,849	15,797	16,192	17,004	16,500
	P	3,253	3,841	4,099	4,264	4,322
Cucumber and gherkins	A	47	60	72	70	73
	Y	11,473	11,599	11,750	12,493	12,39
	P	542	700	846	876	905

(Cont'd)

TABLE A.7. (Cont'd)

Crop		1974/76	1979	1980	1981	1982
Onions, dry	A	57	51	52	50	55
	Y	17,824	19,305	18,064	19,165	18,818
	P	1,018	989	933	966	1,029
Water melons	A	179	191	229	228	247
	Y	14,203	13,762	14,083	14,115	13,757
	P	2,544	2,625	3,225	3,215	3,392
Vegetable and melons (total)	P	11,639	13,337	14,466	15,047	15,566
Potatoes	A	75	99	111	117	115
	Y	14,320	16,248	17,071	16,337	15,363
	P	1,074	1,601	1,892	1,916	1,766
Grapes	P	988	1,225	1,352	1,427	1,444
Olives	P	297	235	532	257	593
Oranges	P	1,135	1,458	1,341	1,298	1,302
Citrus fruits	P	1,491	1,889	1,769	1,707	1,731
Apples	P	243	331	309	297	368
Dates	P	1,341	1,468	1,448	1,428	1,529
Fruits Total excluding melons	P	5,000	6,027	6,025	6,026	6,314

SOURCE: FAO, ICS printouts of agricultural production, November 1983, (unpublished).

A: area harvested; Y: yield; P: production.

## Appendix I

TABLE A.8. INDEX NUMBERS AND ANNUAL CHANGE OF GROSS LIVESTOCK PRODUCTION IN ECWA COUNTRIES, SELECTED YEARS

(1974/76 = 100)

Country	1975	1979	1980	1981	1982	Annual Percentage Change		
						1980	1981	1982
						1979	1980	1981
Democratic Yemen	99	96	104	105	104	8.3	1.0	- 1.0
Egypt	100	107	109	115	117	1.9	5.5	1.7
Iraq	102	112	117	127	143	4.5	8.5	12.6
Jordan	105	134	138	148	150	3.0	7.2	1.4
Lebanon	106	132	174	156	164	31.8	-10.3	5.1
Saudi Arabia	101	155	165	178	188	6.5	7.9	5.6
Syria	102	164	179	198	217	9.1	10.6	9.6
Yemen	100	105	102	101	101	- 2.9	- 1.0	0.0
ECWA (including Egypt)	101	120	126	133	140	5.0	5.6	5.3
ECWA (excluding Egypt)	102	131	139	148	159	6.1	6.5	7.4

SOURCE: FAO, ICS printouts of production index numbers, November 1983, (unpublished).

Appendix I

TABLE A.9. TOTAL AGRICULTURAL EXPORTS, IMPORTS AND BALANCE OF TRADE OF THE ECWA COUNTRIES, SELECTED YEARS

(Millions of US dollars)

	1969/71	1975	1979	1980	1981
<b>Oil Exporting Countries:</b>					
<b>Bahrain</b>					
Trade Deficit	- 17.3	- 63.4	- 192.7	- 206.4	195.9
Exports	5.1	15.9	10.7	22.4	20.9
Imports	- 22.4	- 79.3	- 203.4	- 228.8	- 216.8
<b>Iraq</b>					
Trade Deficit	- 92.6	-718.3	-1,378.8	-1,751.3	-1,868.8
Exports	43.1	58.3	64.8	70.6	63.9
Imports	-135.7	-776.6	-1,443.6	-1,821.9	-1,932.7
<b>Kuwait</b>					
Trade Deficit	-107.7	-380.5	- 733.8	-1,082.9	-1,120.9
Exports	15.5	28.8	74.7	94.7	90.9
Imports	-123.2	-409.3	- 808.5	-1,177.6	-1,211.8
<b>Oman</b>					
Trade Deficit	- 12.4	- 78.6	175.3	240.7	- 269.3
Exports	0.9	4.2	37.6	23.7	27.9
Imports	- 13.3	- 82.8	- 212.9	- 264.4	- 297.2
<b>Qatar</b>					
Trade Deficit	- 16.7	- 55.2	- 164.7	- 207.9	- 210.2
Exports	-	1.7	-	-	-
Imports	- 16.7	- 56.9	- 164.7	- 207.9	- 210.2
<b>Saudi Arabia</b>					
Trade Deficit	-220.7	-595.8	-3,028.3	-4,144.1	-4,905.7
Exports	2.8	21.8	47.9	95.1	106.0
Imports	-223.3	-617.6	-3,076.2	-4,239.2	-5,011.7
<b>United Arab Emirates</b>					
Trade Deficit	- 27.6	-283.1	- 747.8	- 654.2	- 683.8
Exports	2.5	14.2	172.6	182.3	98.7
Imports	- 30.1	-297.3	- 920.4	- 836.5	- 782.5

(Cont'd)

TABLE A.9. (Cont'd)

	1969/71	1975	1979	1980	1981
<b>Non-Oil Exporting Countries</b>					
<b>Democratic Yemen</b>					
Trade Deficit	- 35.3	- 65.1	140.8	- 231.4	- 241.0
Exports	12.9	5.4	9.6	15.1	- 10.0
Imports	- 48.2	- 70.5	- 150.4	- 246.6	- 251.2
<b>Egypt</b>					
Trade Deficit	+274.9	-631.7	-1,072.4	-1,705.9	-2,488.7
Exports	525.3	782.1	610.1	667.5	715.0
Imports	250.4	-1,413.8	-1,682.5	-2,373.4	-3,203.7
<b>Jordan</b>					
Trade Deficit	- 50.2	- 145.1	- 271.6	- 274.3	- 361.7
Exports	16.2	39.9	147.1	193.5	128.0
Imports	- 66.4	- 185.0	- 418.7	- 467.8	- 489.7
<b>Lebanon</b>					
Trade Deficit	- 88.3	- 251.6	- 325.4	- 399.2	- 516.2
Exports	70.5	99.5	210.3	247.2	183.5
Imports	-158.8	- 351.1	- 535.7	- 646.4	- 699.7
<b>Syria</b>					
Trade Deficit	+ 37.5	- 171.7	- 159.5	- 309.8	- 445.6
Exports	143.9	191.9	297.4	280.1	236.8
Imports	-106.4	- 363.6	- 456.9	- 589.9	- 682.4
<b>Yemen</b>					
Trade Deficit	- 15.1	+ 140.5	- 428.1	- 489.2	- 570.7
Exports	2.1	11.7	5.5	10.6	3.1
Imports	- 17.2	- 152.2	- 433.6	- 499.8	- 573.8

SOURCE: ECWA, compiled and computed on the basis of FAO, ICS printouts of agricultural trade, November 1982.



Appendix II

TABLE 1: TOTAL AREA PLANTED, TOTAL PRODUCTION AND YIELD FOR MAJOR VEGETABLES 1975-1982

Vegetable	Year	Total area	Total production	Yield (kg. per donum)
Okra	1975	36,500	89,400	2,449
	1976	39,900	79,100	1,982
	1977	46,000	102,000	2,215
	1978	49,800	92,200	1,850
	1979	57,500	83,400	1,450
	1980	64,000	85,300	1,290
	1981	70,700	109,000	1,542
	1982	78,900	137,900	1,750
Tomato	1975	178,000	389,000	2,185
	1976	182,500	491,800	2,695
	1977	162,500	401,700	2,472
	1978	161,300	432,300	2,680
	1979	115,500	266,600	2,309
	1980	142,900	347,800	2,434
	1981	163,700	425,200	2,597
	1982	168,300	467,900	2,782
Broad beans, green	1975	54,600	80,000	1,464
	1976	72,200	97,000	1,343
	1977	69,500	93,900	1,352
	1978	56,000	69,500	1,242
	1979	53,900	74,900	1,389
	1980	64,800	92,800	1,432
	1981	54,700	96,600	1,767
	1982	60,000	83,800	1,397
Eggplant	1975	23,000	81,800	3,557
	1976	25,900	112,200	4,317
	1977	28,300	120,500	4,253
	1978	28,500	106,300	3,729
	1979	23,300	51,400	2,210
	1980	37,200	100,900	2,712
	1981	30,000	83,300	2,778
	1982	40,000	110,400	2,754

(Cont'd)

TABLE 1 (Cont'd)

Vegetable	Year	Total area	Total production	Yield (kg. per donum)
Green string beans	1975	20,500	25,600	1,250
	1976	24,400	27,700	1,138
	1977	32,300	38,400	1,189
	1978	28,900	35,800	1,237
	1979	41,400	49,100	1,186
	1980	54,100	71,900	1,327
	1981	52,300	77,300	1,477
	1982	54,400	86,500	1,590
Melon	1975	39,100	65,200	1,664
	1976	42,700	79,700	1,865
	1977	48,900	106,900	2,186
	1978	53,800	105,700	1,963
	1979	53,500	117,500	2,198
	1980	73,200	149,700	2,044
	1981	104,100	229,700	2,206
	1982	147,000	353,800	2,407
Water melon	1975	123,000	349,500	2,841
	1976	179,100	529,900	2,958
	1977	182,600	577,800	3,164
	1978	178,200	595,700	3,343
	1979	142,200	431,000	3,030
	1980	181,100	473,300	2,613
	1981	171,300	491,100	1,876
	1982	171,800	378,900	3,250
Cucumber	1975	56,300	107,000	1,901
	1976	57,600	101,700	1,765
	1977	79,000	159,600	2,020
	1978	79,900	158,600	1,986
	1979	99,700	158,700	1,690
	1980	122,400	222,200	1,814
	1981	116,600	239,500	2,053
	1982	130,800	277,600	2,122

SOURCE: Ibid.

## Appendix II

TABLE 2: TOTAL AREA, TOTAL PRODUCTION AND YIELD FOR MAJOR LEGUMES, DILSEEDS, TUBERS AND BULBS AND INDUSTRIAL CROPS 1975 - 1982

Industrial	Year	Total area (100 donum)	Total Prod. (100 tons)	Yield Kg/donum
Legumes  Dry broad beans	1975	798	178	224
	1976	633	163	258
	1977	582	155	268
	1978	588	155	263
	1979	328	92	279
	1980	487	126	258
	1981	366	132	361
	1982	276	112	406
Chick peas	1975	461	25	163
	1976	546	71	131
	1977	598	91	153
	1978	1,047	58	56
	1979	726	116	160
	1980	977	130	133
	1981	670	120	179
	1982	678	116	185
Lentils	1975	205	48	234
	1976	226	51	226
	1977	255	59	232
	1978	395	85	215
	1979	263	66	253
	1980	285	58	202
	1981	256	54	213
	1982	256	55	213
Green gram	1975	522	69	132
	1976	453	76	169
	1977	322	54	169
	1978	517	52	100
	1979	467	41	87
	1980	369	37	105
	1981	408	62	152
	1982	402	63	157

(Cont'd)

TABLE 2 (Cont'd)

Industrial	Year	Total area (100 donum)	Total Prod. (100 tons)	Yield Kg/donum
Oil seeds	1975	92	13	142
	1976	36	7	197
Linseed	1977	39	1.5	39
	1978	35	9	237
	1979	117	20	170
	1980	100	16	163
	1981	32	6	134
	1982	23	3	131
Sesame	1975	467	76	162
	1976	480	70	146
	1977	367	46	126
	1978	868	86	99
	1979	721	69	95
	1980	477	44	91
	1981	479	59	124
	1982	466	56	121
Sunflower	1975	219	42	192
	1976	320	75	233
	1977	326	72	221
	1978	198	47	238
	1979	535	110	206
	1980	540	124	230
	1981	401	60	150
	1982	343	78	249
Tubers & bulbs	1975	536	879	1,641
	1976	389	756	1,944
Dry onions	1977	421	812	1,930
	1978	409	702	1,718
	1979	328	807	2,458
	1980	706	1,280	1,814
	1981	723	1,496	2,070
	1982	544	1,132	2,082

(Cont'd)

TABLE 2 (Cont'd)

Industrial	Year	Total area (100 donum)	Total Prod. (100 tons)	Yield Kg/donum
Potato	1975	209	441	2113
	1976	307	742	2418
	1977	235	644	2734
	1978	277	1,040	3756
	1979	320	879	3635
	1980	181	970	5353
	1981	215	1,041	4843
	1982	201	930	4631
Industrial crops  Sugar cane	1975	154	1,042	6,783
	1976	120	1,281	10,677
	1977	130	1,533	11,800
	1978	169	2,007	11,857
	1979	169	2,308	13,639
	1980	166	1,900	11,461
	1981	135	1,890	14,000
	1982	135	1,460	10,815
Cotton	1975	1,051	386	367
	1976	1,013	339	334
	1977	793	257	324
	1978	765	139	182
	1979	694	173	249
	1980	637	149	234
	1981	454	133	292
	1982	482	141	293
Tobacco	1975	385	44	114
	1976	339	67	198
	1977	500	72	145
	1978	469	110	234
	1979	388	94	243
	1980	434	96	221
	1981	480	119	248
	1982	501	123	245

SOURCE: Ibid.

Appendix III

TABLE 1: CURRENT DEVELOPMENT PLANS

COUNTRY	DURATION AND SCOPE OF PLAN
Afghanistan	1976 - 83
Algeria	1980 - 84
Cyprus	1981 - 86
Egypt	1982/83 - 1986/87
Jordan	1981 - 85
Libya	1981 - 85
Morocco	1981 - 86
Pakistan	1978 - 83
Somalia	1982 - 86
Saudi Arabia	1981 - 85
Sudan	1977/78 - 1982/83
Syria	1981 - 85
Tunisia	1982 - 86
Yemen Arab Republic	1982 - 86
Peoples* Democratic Republic of Yemen	1981 - 85

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## Appendix III

Table 2: THE SALIENT CHARACTERISTICS OF THE ECONOMIES OF THE COUNTRIES OF THE REGION IN 1980

	Population in 1980 (Millions)	Rate of growth of population 1970-1980		Agricultural population as percentage of total population		Agricultural Labour force as a percentage of total labour force		Agricultural Exports as percentage of total Exports <sup>2/</sup>		GDP Per caput Dollars	Share of Agricultural GDP		Agricultural GDP.P.C. Agr. Pop. as Percentage of non Agr. GDP.P.C. Non Agricultural Pop.	
		Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage		Percentage	Percentage	Percentage	Percentage
Afghanistan	15.9	2.6	77.8	77.8	-	242 <sup>1/</sup>	-	-	-	-	-	-	-	
Algeria	18.9	3.3	49.3	49.9	0.9	2,109	6	6	6	6.5	6	6	6.5	
Egypt	41.9	2.0	50.4	50.4	21.9	577	23	23	23	29.4	23	23	29.4	
Iran	38.1	2.9	37.5	38.5	-	-	-	-	-	-	-	-	-	
Iraq	13.1	3.3	40.2	40.2	-	2,733	7	7	7	4.5	7	7	4.5	
Jordan	3.2	3.4	25.8	25.8	33.7	684	8	8	8	25.0	8	8	25.0	
Lebanon	2.7	0.8	9.9	9.9	-	-	-	-	-	-	-	-	-	
Libya	3.0	4.1	15.7	15.7	-	10,697	2	2	2	11.0	2	2	11.0	
Morocco	20.3	2.9	51.1	51.2	24.5	888	18	18	18	31.4	18	18	31.4	
Pakistan	86.9	3.1	53.5	53.5	39.4	261	31	31	31	39.0	31	31	39.0	
Saudi Arabia	9.0	4.5	60.1	60.1	1.0 <sup>2/</sup>	12,825	1	1	1	0.7	1	1	0.7	
Somalia	4.6	2.3	80.0	80.0	96.6	290	60	60	60	37.4	60	60	37.4	
Sudan	18.4	2.6	76.9	76.9	96.1	384	38	38	38	18.4	38	38	18.4	
Syria	9.0	3.6	47.5	47.5	13.3	1,433	20	20	20	27.6	20	20	27.6	
Tunisia	6.3	2.1	40.6	40.6	6.1	1,140	17	17	17	30.0	17	17	30.0	
Yemen AR	5.8	1.8	74.9	74.9	46.8	373	29	29	29	13.6	29	29	13.6	
Yemen PDR	1.9	2.3	58.6	58.6	1.9	284	13	13	13	10.5	13	13	10.5	

SOURCE: World Development Report 1982, The World Bank and FAO Production and Trade Year Books 1981.

<sup>1/</sup> 1978.<sup>2/</sup> Including oil export.

Appendix IV

TABLE 1. TOTAL GRAIN PRODUCTION IN ECWA COUNTRIES  
(in thousands of tons)

	1977	1978	1979	1980
Iraq	1445	1800	1874	2400
Kuwait	-	-	-	-
Saudi Arabia	297	304	373	284
Bahrain	-	-	-	-
Qatar	0.054	0.105	0.102	0.640
United Arab Emirates	-	-	-	0.033
Oman	5	6	6	3.36
Syrian Arab Republic	1638.2	2455.1	1762.3	3880.3
Jordan	83	80.6	23.6	181.4
Lebanon	61	57	49	52
Democratic Yemen	110	102	114	126.2
Yemen	855	824	892	1305.2

SOURCE: Secretariat of the Arab Federation of Food Industries (AFFI)

Appendix IV

TABLE 2. TOTAL CITRUS PRODUCTION  
(in thousand tons)

	1977	1978	1979	1980
Iraq	153	159.8	189	192
Kuwait	0.08	0.05	0.05	-
Saudi Arabia	25.4	28.9	29	29
Qatar	0.16	0.16	1	0.37
United Arab Emirates	8.4	-	4.4	14
Oman	12	13	14	30
Syrian Arab Republic	42.6	41	57	66
Jordan	36.5	32.9	30	48.5
Lebanon	327	328	340	350

SOURCE: Secretariat of the Arab Federation of Food Industries (AFFI).



Appendix IV

TABLE 3: POPULATION OF ECWA COUNTRIES IN 1981, AND AS EXPECTED IN THE YEARS 1990 AND 2000

(in millions)

	1981	1990	2000
United Arab Emirates	1.122	-	-
Saudi Arabia	8.618	12	15
Qatar	0.245	-	-
Iraq	13.670	18	23
Bahrain	0.351	-	-
Syria	9.300	12	16
Oman	1.500	-	-
Jordan (without the West Bank)	2.400	4	6
Lebanon	3.180	-	4
Kuwait	1.464	2	2
Yemen	7.145	9	11
Democratic Yemen	1.903	-	3

SOURCE: Arab Fund for Economic and Social Development Indicators of GNP in the Arab World, April 1983.

Appendix IV.

TABLE 4: PERCENTAGE CONTRIBUTIONS OF AGRICULTURE, LIVESTOCK WEALTH AND MANUFACTURED INDUSTRIES IN THE GROSS NATIONAL PRODUCT

	Agriculture and livestock wealth	Manufacturing industries
United Arab Emirates	0.8	6.8
Saudi Arabia	1.0	5.0
Qatar (1980)	0.5	3.7
Kuwait	3.0	5.6
Iraq	-	-
Bahrain	1.0	20.6
Syria	18.7	-
Oman	1.7	1.1
Jordan	6.5	14.3
Lebanon	-	-
Yemen	32.6	6.8
Democratic Yemen	22.9	11.3

SOURCE: Ibid.

## Appendix IV

Table 5: PRODUCTION OF OIL SEEDS IN SELECTED ECWA COUNTRIES  
(in thousand tons)

Country	1977			1978			1979			1980				
	Sesame	Sun flower	Pea nuts	Sesame	Sun flower	Pea nuts	Sesame	Sun flower	Pea nuts	Sesame	Sun flower	Pea nuts	Cotton seed	
Iraq	4.7	7.2	0.37	8.6	9.7	0.84	8.9	9	11.02	0.44	11.1	9	5	13
Saudi Arabia	1.1	-	-	0.50	-	-	-	1	-	-	-	1	-	-
Syria	18.3	7.4	20.2	19	10	15	200	14	11	18	195	25	13	206.7
Jordan	0.129	-	-	0.04	-	-	-	0.01	-	-	-	0.02	-	-
Democratic Yemen	2.9	-	-	1.9	-	-	6.5	1.6	-	-	195	4	-	206.7
Yemen	6.4	-	-	6.3	-	-	2.6	6.3	-	-	2.6	6	-	3
Lebanon	-	3	4	-	1	4	-	-	1	4	-	-	1	4

SOURCE: Secretariat of the Arab Federation of Food Industries (AFFI).

Appendix IV.

TABLE 6: TOTAL FRUIT PRODUCTION

(in thousand tons)

	1977	1978	1979	1980
Iraq	1,114	1,247.8	1,110	1,298
Kuwait	0.7	0.8	0.8	0.6
Saudi Arabia	450.1	496	434	580.8
Bahrain	40.7	40	40	42
Qatar	3.8	3.4	3.7	4
United Arab Emirates	-	46.7	48.2	78
Oman	78	78	78	56.5
Syria	830.2	978	845	1,163
Jordan	75.3	135.7	72.6	120
Lebanon	547	564	583.3	791.6
Democratic Yemen	28	22.2	23	21
Yemen	137.4	118.6	122.8	205

SOURCE: AFFI.

Appendix IV.

TABLE 7: TOTAL VEGETABLE PRODUCTION IN ECWA COUNTRIES

	1977	1978	1979	1980
Iraq	2,080	2,060	2,229.6	2,074
Kuwait	27.3	29.3	25.6	13.7
Saudi Arabia	707		520	447.9
Bahrain	22	7.3	7.2	7.2
Qatar	17.4	13.6	20.6	17.7
United Arab Emirates	40.3	71.8	84	75
Oman	8	8	8	8.9
Syria	2,589.4	2,705	2,512	3,401
Jordan	178	386	294.5	335
Lebanon	280	286	284	280
Democratic Yemen	45.9	109	110	110
Yemen	209.9	226.1	230	230

SOURCE: AFFI

Appendix IV.

TABLE 8: TOTAL MEAT PRODUCTION (BOTH RED AND WHITE) IN ECWA COUNTRIES

(in thousands of tons)

	1977	1978	1979	1980
Iraq	182.5	168.3	172.3	249.8
Kuwait	23.9	25.3	40.6	28
Saudi Arabia	75.1	70.9	74.2	54.7
Bahrain	3.8	4.3	4.9	3
Qatar	3.9	4	1.7	2.1
United Arab Emirates	8.4	9.9	10.9	11
Oman	6.1	6.1	6.1	5.5
Syria	69.2	110.7	137.1	135
Jordan	17.4	34.7	37.5	29
Lebanon	32	40	39	39.3
Democratic Yemen	15	15	15	16.4
Yemen	64.9	64.5	63.5	57.6

SOURCE: AFFI

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