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INDUSTRIAL DEVELOPMENT REVIEW SERIES

JORDAN

Stimulating manufacturing employment and exports

Prepared by the
Regional and Country Studies Branch

547

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PREFACE

This Industrial Development Review is one of a series of country studies prepared by the Regional and Country Studies Branch of the United Nations Industrial Development Organization (UNIDO).

The Reviews present brief factual and analytical surveys of industrial development in developing countries. Such industry-specific Reviews are in demand for a variety of purposes: to provide an information service to relevant sections within UNIDO and other international organizations and aid agencies concerned with technical assistance to industry; to be used as a reference source for financial organizations, public and private industrial enterprises, and economic research institutes in developed and developing countries; and to serve as a handy, useful information source for policy-makers in developing countries. Although the Reviews do not represent in-depth industrial surveys, they focus exclusively on industry and present the information on the entire spectrum of the industrial development process in the countries concerned in a condensed and yet comprehensive form.

The Reviews draw primarily on information and material available at UNIDO headquarters from national and international sources as well as data contained in the UNIDO data base. Generally, specific field surveys are not undertaken. The presentation of up-to-date information on sub-sectoral manufacturing trends are usually constrained by incomplete national data on the industrial sector. To supplement efforts under way in UNIDO to improve the data base and to monitor industrial progress and changes on a regular basis, it is hoped that the appropriate national authorities and institutions in the respective countries and other readers will provide relevant comments and information. Such response will greatly assist in updating the Reviews.

The present Review was prepared on the basis of information available at UNIDO Headquarters at the end of September 1987. It is divided into two parts. Chapters 1 and 2 are analytical, giving first a brief overview of the country's economy and its manufacturing sector and then a more detailed review of the structure and development of its manufacturing industries. Chapter 3 is dealing with sub-sectoral analyses, focussing on the problems and prospects of engineering, small-scale and packaging industries. Chapter 4 contains an overview and assessment of national plans and policy measures relevant to industrial development and a review of the more important governmental and other institutions involved with a focus on the role of technical co-operation in industrial development.

It should be noted that the Reviews are not official statements of intention or policy by governments nor do the views and comments contained therein necessarily reflect those of the respective governments.

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EXPLANATORY NOTE

Regional classifications, industrial classifications, trade classifications, and symbols used in the statistical tables of this report, unless otherwise indicated, follow those adopted in the United Nations Statistical Yearbook.

Dates divided by a slash (1986/87) indicate a crop year or a financial year. Dates divided by a hyphen (1986-1987) indicate the full period, including the beginning and end years.

References to dollars ($) are to United States dollars, unless otherwise stated.

Percentages may not add to 100.0 precisely due to roundings.

In Tables:

- Three dots (...) indicate that data are not available or not separately reported;
- Two dashes (--) indicate that the amount is nil or negligible;
- A hyphen (-) indicate that the item is not applicable.

The following abbreviations are used in this document:

CES	Constant elasticity of substitution
EEC	European Economic Community
GDP	Gross domestic product
GNP	Gross national product
ISIC	International Standard Industrial Classification
JD	Jordanian dinar
LIBOR	London interbank office rate
MVA	Manufacturing value added
OIC	Organization of Islamic Conference
OPEC	Organization of Petroleum Exporting Countries
SITC	Standard International Trade Classification
UNIDO	United Nations Industrial Development Organization

BASIC INDICATORS 1
The Economy

GDP (1985)	:	$3,450 million
Population (mid-1985)	:	3.5 million
Average annual growth rate of population (per cent)	:	1965-1980: 2.6; 1980-1985: 3.7
Labour force (1987)	:	595,000[a/]
GNP per capita (1985)	:	$1,560
Average annual growth rate of GDP (per cent)	:	1972-1975: 16.5; 1976-1980: 8.5; 1980-1985: 6.4; 1986: 2.6; 1987[a/]: 3.5; 1988[b/]: 3.5
Distribution of GDP (per cent)	:	

	1970	1980	1984
Agriculture	10.2	6.6	6.0
Industry	7.5	17.0	16.5
Manufacturing	4.3	11.1	11.2
Other	82.3	76.4	77.5

Rate of Inflation (per cent)	:	1981	1982	1983	1984	1985	1986	1987[a/]
		7.1	7.4	5.0	3.8	3.0	2.5	1.0

Exchange rate (Jordanian dinar equivelants to $1)	:	1982	1983	1984	1985	1986	1987(August)
		0.352	0.363	0.384	0.394	0.350	0.344

a/ Estimate.
b/ UNIDO forecast.

BASIC INDICATORS 2
Resources

Resources		
Crops, leading products (1986)[a/] ('000 tonnes)	:	Wheat (21.6), barley (7.1), tomatoes (159.7), cucumbers (51.1), melons (42.7), olives (31.7), citrus fruits (83.1)
Livestock (1984) ('000 head)	:	Cattle (40), sheep (1,000), goats (500)
Forestry production (1983) ('000 cubic metre)	:	Fuelwood and charcoal (5), industrial round wood (4)
Mineral resources (1986) (tonnes)	:	Phosphate reserves (proven), 1.5 billion; Phosphate productic., 6,249 million; Potash output 1.2 million
Energy resources (1986)	:	Oil shale deposits (1.3 billion)[b/]; Electricity production (2,154 kWh)

a/ Preliminary.
b/ Capable of producing 50,000 barrels of oil a day, but not yet exploited.

BASIC INDICATORS 3
Foreign trade and balance of payments

Exports

Total value (1986)	:	JD256.03 million
Main exports (1986) (per cent)	:	Food and other consumer goods (54.1), phosphates (29.8), construction materials (3.4), other (12.7)
Main destinations (1985) (per cent)	:	Iraq (25.8), Saudi Arabia (15.3), EEC (4.5), India (17.7), Romania (3.9), Indonesia (3.6), Kuwait (3.0), Other (26.2)

Imports

Total value (1986)	:	JD850.2 million
Principal imports (1986) (per cent)	:	Consumer goods (38.7), raw materials (33.4), capital goods (23.0), other (4.9)
Main origins (1985) (per cent)	:	EEC (29.5), Saudi Arabia (15.8), USA (11.9), Iraq (6.8), Japan (6.3), Other (29.7)

		1980	1981	1982	1983	1984	1985	1986	1987[a/]
Balance of payments (current account balance) ($ million)	:	374	-39	-333	-391	-265	-261	-40	-200
External debt (1987)	:	$4 billion[a/]							
Debt service ratio (1985) (as per cent of export earnings)	:	22.1							

a/ Preliminary.

BASIC INDICATORS 4
The manufacturing sector

MVA (1985) : $469.9 million

MVA per capita (1984) : $139

MVA average annual growth rate of (per cent) :

1972-1975	1976-1980	1980-1984	1985[a/]	1986[a/]
26.5	15.6	6.6	2.2	0.8

1987[b/]	1988[b/]
4.6	5.4

Structure of MVA (per cent) :

	1975	1985
Food products	18.3	6.8
Tobacco	6.3	12.9
Industrial chemicals	6.1	8.6
Petroleum refineries	15.0	15.7
Non-metallic mineral products	8.9	21.8
Other	45.4	34.2

Share of manfactured exports in total exports : 43.2 per cent (1985)[c/]
59.1 per cent (1984)[d/]

Share of manufactured imports in total imports : 48.8 per cent (1985)[c/]
52.0 per cent (1984)[d/]

a/ Estimate.
b/ UNIDO forcast.
c/ SITC 5 to 8 less (67 + 68) (narrow definition).
d/ Broad definition of manufacturing trade.

BASIC INDICATORS 5
Inter-country comparison of selected indicators

	Unit	Egypt	Iraq	Israel	Jordan	Libya	Syria
I. Demographic indicators							
Population (mid-1985)	millions	48.5	15.9	4.2	3.5	3.8	10.5
Population growth (1980-85)	per cent per annum	2.8	3.6	1.8	3.7	3.9	3.6
Infant mortality (1985) (aged under 1 year)	per thousand	93	73	14	49	90	54
Area	'000 sq. km.	1,001	435	21	98	1,760	185
Density (1985)	persons km^2	48.5	36.6	200.0	35.7	2.2	56.8
II. Economic indicators							
GDP (1985)	$ billion	30.6	...	20.3	3.5	25.4	16.4
GDP per capita (1985)	$	610	...	4,990	1,560	7,170	1,570
GDP growth (1980-85)	per cent/annum	5.2	...	1.7	4.1	-6.1	1.5
Agriculture (1985)	per cent of GDP	20	...	...	8	4	22
Industry (1985)	per cent of GDP	31	...	...	28	57	21
Manufacturing (1985)	per cent of GDP	27[a]	...	...	12	5	...
Services (1985)	per cent of GDP	49	...	...	64	39	57
Exports of goods and non-factor services (1985)	per cent of GDP	27	...	42	49	43[b]	11
Gross domestic investment (1985)	per cent of GDP	25	...	16	31	23[b]	24
External public debt (1985) (outstanding & disbursed)	per cent of GDP	61.9	...	82.4	70.9	...	16.9
III. Industrial indicators							
MVA (1984) (at constant 1980 prices)	$ million	454	1,887	3,759	469	871	597[a]
Share of MVA in GDP (1984)	per cent	12.6	4.3	16.1	11.2	3.2	4.0[a]
Growth of MVA (1980-1984) (annual average)	per cent	7.0	-5.9	4.0	6.6	4.8	...
Share of manufactured exports[c] in total exports (1985)	per cent	10.02	0.48[d]	82.65	43.20	1.26[a]	15.08[b]
Share of manufactured imports[c] in total imports (1985)	per cent	52.13	78.54[d]	63.07	48.81	75.31[a]	40.92[b]

a/ 1982.
b/ 1983.
c/ SITC 5 to 8 less (67 + 68).

SUMMARY

The economy of Jordan is slowly emerging from the recession that hit the Middle East region in the early 1980s. Although an estimated 3.5 per cent increase in GDP in 1987, compared with 2.6 per cent in 1986, marks an accelerated pace of economic growth, the rate of growth is short of the targeted annual growth rate of 5 per cent during the Third Five-Year Plan (1986-1990). In consequence of a high rate of growth of population averaging 3.8-4.0 per cent per annum, per capita income continued to fall during 1982-1987 and is estimated to be below the 1981 level. In the face of growing unemployment and high level of external vulnerability, there is a continued search for restructuring the Jordanian economy.

The share of the manufacturing sector in GDP increased from about 8 per cent in 1974 to over 11 per cent in 1984. During 1974-1980 MVA grew at an annual average rate of over 13 per cent and the Second Five-Year Economic Plan envisaged a further growth of 17.5 per cent per annum for the period 1981-1985. Actual growth achieved during this period was only about 5 per cent per annum. Growth targets have been significantly modified in the current Five-Year Plan (1986-1990).

Most manufacturing enterprises are located in a narrow industrial belt stretching from Amman to Zarqa in the North West of the country. Jordan may be said to possess a dualistic industrial structure. Most small- and medium-sized firms are in the textile manufacturing and metal products branches. The large establishments - with State participation - are in the chemical, non-metallic mineral and petroleum refining branches. Together these branches accounted for 46.1 per cent of MVA in 1985 - up from 30.0 per cent in 1975. The rapid growth of these industries reflects the close relationship between the mining and manufacturing sector. The industrial strategy has centered upon increasing the domestic processing of mineral extracts. This has resulted in the growth of large publicly-funded capital-intensive projects and a relative neglect of small scale-enterprise. The current Five-Year Plan places special emphasis on the rapid growth of the private manufacturing sector and a wide range of incentives have been offered to encourage its development. The expansion of the private sector is likely to stimulate the growth of small-scale enterprise in Jordan.

While growth rates have remained high within the manufacturing sector industrial efficiency has remained low. The gross output to value added ratio has declined significantly over the past decade indicating a substantial increase in unit material costs, while real wage rates have remained stagnant. Decline in value added to gross output and the gross profit to gross output ratio has been particularly marked for the natural resource-based and the engineering industries. Both these groups have therefore increased their dependence on State support as a means for financing investment. The financial performance of the consumer goods industries has been significantly superior. Aggregate labour productivity has however grown slowly in most branches. The financial performance of smaller and less capital-incentive firms was superior to that of the major enterprises and the former tended to

have a higher ratio of investment in 1984. In that year the firms with high investment tended to have higher than average net earning ratios - indicating a growth in the ratio of self-financing and a decline in the availability of external funds.

Manufactured exports have increased rapidly in recent years - they now constitute almost 60 per cent of total export revenue. The natural resource-based industries are the most export-oriented branches. The export performance of the engineering branches remains weak, whereas that of the consumer goods branches has improved perceptively - this may be partly attributable to the higher levels of protection which they enjoy.

Expanding export orientation will not be a sufficient stimulant to employment growth - employment elasticities of major export and domestic demand-oriented branches are broadly similar. Lowering the real wage rate is also unlikely to expand exports, for Jordan competes with countries such as Egypt and India with significantly lower costs. Stimulating export growth requires the conscious development of a regional approach which can integrate national investment and trade strategies and enable Jordan to carve out a relatively permanent niche for their manufactured exports within the Arab region. Expanding manufactured exports - especially because of the weakness in world phosphate prices - has been an important objective of Jordanian industrial policy.

The current Plan endeavours to create 97,000 new employment opportunities, and attaches the highest priority to the expansion of manufacturing employment. This would require stimulating the growth of relatively labour-intensive engineering and small-scale industries and maintaining the growth of domestic demand. A fall in real wages, leading to a contraction of the domestic market, can be serious for Jordanian manufacturing which remains predominantly domestic demand oriented.

Multilateral and bilateral technical assistance can play a key role in facilitating the expansion of manufacturing employment and exports. It can assist in the construction of viable mechanisms for regional investment and trade policy harmonisation at the branch level. It can identify the institutional requirements for fostering the growth of small-scale and engineering industries and can provide technical support for programmes which aim at improving the management efficiency of the main manufacturing enterprises. There is also a need to provide assistance for the expansion and improvement of the industrial statistical services in Jordan.

The UNIDO assistance programme is constantly reviewed in the light of changes in industrial priorities identified in the Plan and other government policy documents. UNIDO is also ideally placed to play a co-ordinating role in the field of multilateral and bilateral assistance to the industrial sector extended by different agencies within the UN system and bilateral agencies. UNIDO assistance has been provided for the conduct of an industrial survey as an input into the Third Plan, the establishment of industrial estates, investment promotion, standardization and quality control and the organization of a centre for industrial development. Branches to which assistance has been extended include food processing, packaging, industrial machinery, phosphate mining, solar energy, building materials, plastics, paper and pesticides. A viable development strategy would need to concern itself with the restructuring of the manufacturing sector in pursuit of stimulating manufacturing employment and exports.

1. THE ECONOMY OF JORDAN

1.1 Recent economic trends

During 1987 the rate of growth of GDP in Jordan is expected to increase to 3.5 per cent, compared with 2.6 per cent in 1986. Despite the fact that this is significantly higher than the growth of the previous year, it is still below the annual average population growth of 3.7 per cent. Per capita income remains lower than the 1981 level. The recession of the first half of the 1980s has affected Jordan severely and the economy is now slowly emerging from it. The government expects a rate of GDP growth of 5 per cent per annum during the present Plan period (1986-1990).

The Plan envisages a total investment expenditure of JD3,175 million. The main concern is the reduction of unemployment by creating about 97,000 jobs during 1986-1990. Jordan's labour force is growing at an annual rate of about 7 per cent and this may accelerate significantly if there is a large scale repatriation of Jordanian workers currently employed in the Gulf States and Saudi Arabia. The unemployment rate currently stands at 7 per cent and this necessitates the pursuit of a moderately reflationary economic strategy by the government.

The 1987 Budget reflects such a strategy. Total expenditure is to increase by about 10 per cent from the 1986 level, with most of the increase being concentrated in the capital budget. Growth in recurrent expenditure has been restrained to only about 1 per cent of the actual recurrent expenditure during 1980. Total receipts during 1987 are expected to increase by 4.5 per cent over government estimates of actual income during 1980 - which was 6 per cent higher than the level anticipated in that year's budget. Domestic government revenue is expected to reach JD 506 million and to entirely cover the recurrent expenditure. Foreign grants are expected to increase from JD114.4 million to JD208 million and foreign and domestic borrowing is expected to rise by 6 per cent. The overall budget deficit will increase from JD37.6 million in 1986 to JD 39.6 million and will be met mainly by deficit financing. Debt repayment obligations for 1987 have been estimated at JD 67.2 million. They account for 15.5 per cent of the capital budget and are one and a half times larger than the overall budget deficit.

The rising burden of debt repayment obligations is likely to become increasingly problematic in the medium-run. The debt service ratio (debt-repayments as a proportion of exports) rose from 5.4 per cent in 1980 to 22.0 per cent in 1985, and total external debt currently exceeds $4 billion (roughly equal to the value of Jordanian's GNP in 1987). Jordan repaid $580 million in interest and principal in 1986. The debt repayment burden is likely to increase as Jordan substitutes commercial borrowings for official grants and loans from OPEC members and the United States. Actual grants from OPEC countries during 1986 represented only 45.2 per cent of their total commitments for that year. It is, therefore, estimated that Jordan's debt service ratio will increase by about 33 per cent during 1986-1990. Were this to happen debt service obligations may absorb almost a third of total export revenues - unless of course the rate of growth of exports significantly exceeded that of debt repayment obligations.

Export growth during the 1980s has generally been higher than the growth of imports. Imports grew at an annual average rate of 2.6 per cent during 1981-1985, while exports recorded a growth rate of 6.5 per cent during this period. Export growth was sluggish during 1986. Moreover, since 1982 workers' remittances from abroad have shown a declining trend. Officially recorded transfers amounted to around $1 billion annually. There has been a drop in remittances of about 8 per cent in the first half of 1987. The current account deficit went up sharply during the recession period in 1982 and 1983, but has declined again since then. A current account deficit of almost $200 million is forecast for 1987.

Any acceleration of growth within the domestic economy stimulates import growth disproportionally. During the 1970s Jordan paid for its imports by utilizing the foreign exchange remitted by Jordanians working abroad and through the loans and grants provided by the Gulf States. As the recession hit this region contributions from both these sources declined substantially and there is little likelihood that a future growth oriented strategy could rely principally on external financial sources.

Jordan, thus, needs to adjust to a relatively new international economic environment. Such an adjustment would involve a revitilization of the agricultural sector - to reduce the very high level of food imports - stimulation of manufactured export growth and the development of an employment strategy which makes the economy capable of absorbing both the new entrants and repatriated workers within the domestic economy. The current Jordanian Plan recognizes the importance of reducing external dependence and expanding employment opportunities and accords top priority to both these objectives. Tackling these problems is facilitated by the fact that the fall in external demand has contributed to a significant reduction in Jordan's inflation rate - from almost 15 per cent in 1980 to about 35 per cent in 1987. Nevertheless the successful pursuits of this strategy remains a difficult task and depends crucially upon a significant restructuring of the Jordanian economy.

1.2 Economic structure

With a population of about 3.5 million[1/] and a 1985 GDP of $3.45 billion Jordan is one of the smallest national economies in West Asia.[2/] It experienced the highest rates of growth within the region during 1980-1985, when economies such as Saudi Arabia, and the United Arab Emirates contracted significantly, and Kuwait and Syria had annual growth rates of less than 2 per cent per annum. Jordan's growth rate of 4.1 per cent was, however, significantly below the growth rate achieved during the previous decade. GDP grew at the rate of 16.5 per cent over 1972-1975 and 8.5 per cent per annum during 1976-1980 - reaching a peak of almost 18 per cent in 1979-1980. The deceleration in growth during the 1980s has therefore been considerable in terms of historical experience.

The decade of the 1970s had also witnessed significant structural transformation of the Jordanian economy. Over the period 1974-1980[3/], the share of agriculture in GDP declined from 11.9 per cent to 6.6 per cent (Annex Table A-1).[4/] The share of the service sector increased from 24.6 per cent

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1/ Including about half a million residents in the West Bank.
2/ However GDP estimates are not available for Iran, Iraq and Lebanon.
3/ Statistics for 1970-1973 include estimates for the West Bank and those for the later years do not; hence the two sets are not strictly comparable.
4/ These figures are approximations as shown by the very high levels of statistical discrepancy in Annex Table A-1.

to 29.7 per cent and that of manufacturing increased from 7.9 per cent to 11.1 per cent over this period. Exports as a ratio of GDP increased from 28.2 per cent in 1975 (they constituted only 8.6 per cent of GDP in 1970) to 47.9 per cent in 1980 and imports rose from 72.8 per cent of GDP (37.9 per cent in 1980) to 98.2 per cent over this period (see Annex Table A-2). The 1970s can thus, be seen as a benchmark in Jordanian's economic history. It marked the transformation of the economy to an open foreign trade oriented one (with a trade - GNP ratio significantly higher than the West Asian average and three times higher than the average for the group of all developing countries in 1980) and also saw the emergence of a large modernized service and industrial sector.

The structural change that occured during the high growth phase has not been reversed during the 1980s. Thus, manufacturing, transport and the service sectors have continued to enjoy positive growth rates during the period 1981-1984, whereas agricultural production has contracted. MVA per capita in Jordan in 1984 was 86 per cent of the developing countries' average, in 1980 it was 76 per cent. The trade/GNP ratio in Jordan stood at 144 per cent in 1984 - as against an average of 49.4 per cent for the group of developing countries (see Annex Table A-2).

The high level of external orientation of the Jordanian economy is reflected in its structure of production (as illustrated by the trade ratio cited above as well as in its structure of demand). Thus, despite the fact that gross domestic investment contracted at the rate of 2 per cent per annum during 1980-1985 total consumption exceeded GDP in 1985 by 13 per cent. In that year gross domestic investment as a ratio of GDP stood at 31 per cent - thus, giving a total resource gap of 44 per cent[1/] - higher than that of any other West Asian economy in that year.[2/] All of Jordan's domestic investment and a sizeable proportion of consumption is financed from external inflows.

Jordan's balance of payments position has deteriorated sharply during the 1980s. In 1980 there was a healthy surplus of $373.9 million on the current account complemented by a surplus of $328.2 million on the capital account. By 1985[3/] there was a current account deficit of $261 million and the capital account surplus declined to $217. As noted earlier, the current account deficit is unlikely to fall below $200 million during 1987.

Over the period 1980-1985 the balance of trade deficit has risen marginally from $1.56 billion to $1.58 billion. Export earnings currently constitute only about 33 per cent of expenditure on imports. Whereas imports have contracted by about 16 per cent over 1982-1986, exports have grown at an annual average rate of about 5 per cent per annum over 1980-1984. Since 1982, the balance of trade deficit has shown a declining tendency - falling from $2.13 billion in that year to $1.63 billion in 1985. Jordan's export structure has changed significantly over the past two decades. In 1965 the share of primary commodities and minerals in total exports was as high as 88 per cent - this had fallen to 41 per cent by 1984. The share of manufactures had, on the other hand, risen from 18 per cent to 59 per cent over the same period. Phosphates still constitute over 21 per cent of total export earnings and weakening of world phosphate prices during 1985-1987 has been a major factor behind the slow growth of Jordanian export earnings.

1/ World Bank, World Development Report 1987 p.209.
2/ Figures are, however, not available for Iran, Iraq, Lebanon and Yemen PDR.
3/ The latest year for which figures are available.

Another important feature of Jordan's export structure is the high regional concentration. In 1985 two countries - Iraq and Saudi Arabia - accounted for 41.1 per cent of all Jordanian exports. In 1982 their joint share of Jordanian exports amounted to 50.7 per cent. The growth of Jordan's exports thus, remains crucially dependent on trends in the Iraqi and the Saudi economies - and difficulties associated with the Gulf war or an Iraqi national reconstruction programme behind protectionist barriers can have serious implications for Jordan's export sector. A succcesful export strategy for Jordan must be based upon an attempt at diversification - both in terms of commodities and markets.

Whereas exports are concentrated within the region, most of Jordan's non-fuel imports are obtained from the United States and the EEC. There exists some scope for diversification of import sources. India which in 1985 was Jordan's second largest customer - accounting for 18 per cent of total Jordanian exports - did not figure as a significant source of Jordanian imports. Indonesia and Kuwait are significant importers from Jordan but negligible exporters to that market. A search for export growth and diversification will at least on a regional level have to be accompanied by a concern for the diversification of Jordanian imports as well.

The search for export growth has become of particular significance in view of the stagnation in workers' remittances, which increased from $666 million in 1980 to $1,236 millioin in 1984, but have declined marginally during both 1985 and 1986. Financial assistance from official sources - mainly OPEC countries - has also declined substantially. In 1980 net official transfers to Jordan amounted to $1.31 billion. This figure had been almost halved by 1985. Unless oil prices recover substantially it is unlikely that aid from OPEC members will increase to levels attained in the early 1980s. Moreover if growth is to be sustained at the 5 per cent level specified by the present economic Plan it is almost inevitable that imports will register significant growth and resources will have to be found to finance a current account deficit in the order of about $2 billion (in 1986 prices) on an annual basis.

As Table 1.1 shows, total outstanding debt increased from $120 million to $3.67 billion over 1970-1985. The debt service ratio has increased by a seven-

Table 1.1: Jordan's external debt, 1970 and 1985
($ million)

	1970	1985
Long-term external debt	120.0	2,693.0
Public	120.0	2,693.0
Private	0.0	0.0
Use of IMF credit	0.0	65.0
Short-term debt	0.0	917.0
Total external debt	120.0	3,673.0
Total interest payments	2.0	153.0
Debt service (in per cent of exports of goods and services)	3.6	22.1

Source: World Bank, World Development Report 1987, pp. 233 and 237.

fold factor over this period. Over the period 1980-1985 external public debt increased by 272 per cent. Further substantial increases have been projected for the rest of the present decade. Moreover as private loans become an increasingly important source of external borrowings, terms have inevitably hardened. The average interest rate on external public borrowing has increased from 3.8 per cent in 1970 to 9 per cent in 1985. The average grace period has shortened from 5 to 2 years and the proportion of public debt subject to variable interest rates has risen from nil in 1970 to 18.4 per cent in 1985. Jordan has been cautious in negotiating commercial loans.

A Eurodollar loan worth about $200 million was abandoned in November 1986 despite lengthy negotiations. Five major Eurocurrency loans have been undertaken during 1983-1987 and Jordan has insisted on tying repayments to more than one currency. Thus, the $150 million Eurodollar loan contracted in March 1987 is repayable in either US dollar or Deutschmarks. This seven-year loan has a three and a half year grace period and is subject to a relatively moderate interest charge - only 0.5 per cent above LIBOR during the first 21 months after the expire of the grace period. This indicates that because of Jordan's level of commercial borrowing it is currently a favoured borrower with a high credit rating in the Eurocurrency markets. Repayments of all such loans will prove increasingly difficult if the current account deficit is not substantially reduced in the medium-run. Since imports are currently running at three times the level of exports and remittances are stagnant it would be prudent to avoid international commercial borrowing wherever this is possible.

Reducing the need for external borrowings requires increasing domestic savings. As noted above, the gap between total domestic expenditure and domestic production has been very large - yielding a large negative rate of gross domestic savings. Over the period 1980-1985 public expenditure has exceeded government revenues by an average of over 50 per cent. Although government revenue has risen in recent years, this has more to do with the decline in oil prices (enabling the government to increase the surcharge on oil consumption) than to any fundamental restructuring. As noted earlier the budget for 1987 envisages a rough equivalence between government recurrent expenditure and government revenue, leaving the entire capital budget to be covered by external sources and government deficit financing; government expenditure has represented about 40 per cent of GDP during 1981-1986 and the single most important source of government revenue has been taxes on imports. A restructuring of government expenditure and revenue is thus, essential to reduce dependence on external finance. Such a restructuring is, however, impeded by the possible consequence of reduced public expenditure on employment levels in Jordan.

The threat of growing unemployment and the persistence of a high level of external vulnerability represents the most important problems faced by the Jordanian economy in the medium run. The manufacturing sector can play an important role in enabling the development of a national capacity to deal with both these problems.

1.3 The manufacturing sector: an overview

Jordan may be said to possess a dualistic industrial structure. Most small and medium-sized firms are in the textile and food manufacturing branches. The large establishments - with state participation - are in the chemical, non-metallic mineral and petroleum refining branches which accounted for 46.1 per cent of MVA in 1985 - up from 30.0 per cent in 1975. Most manufacturing enterprises are localized in a narrow industrial belt stretching from Amman to Zorga in the north-west of the country.

The share of the manufacturing sector in GDP increased from about 8 per cent in 1974[1/] to over 12 per cent in 1985. During 1974-1980 MVA grew at an annual average rate of over 13 per cent and the Five-Year Economic Plan envisaged a further growth of 17.5 per cent per annum for the period 1981-1985. Actual growth achieved during this period was only about 5 per cent per annum. Growth targets have been significantly modified in the current Five-Year Plan.

The rapid growth of chemical, non-metallic minerals and petroleum refining industries reflects the close relationship between the mining and manufacturing sector. The industrial strategy has centered upon increasing the domestic processing of mineral extracts. This has meant the growth of large publicly funded capital investment projects and a relative neglect of small-scale enterprise. The current Five-Year Plan puts special emphasis on the rapid growth of the private manufacturing sector and a wide range of incentives have been offered to encourage its development. The expansion of the private sector is likely to stimulate the growth of small-scale enterprise in Jordan.

Industrial estates have been established to attract private sector investment in Amman and Irbid. In 1980, the European Investment Bank lent Jordan $6.7 million to facilitate the completion of the second phase of the Amman Industrial Estate. Another important development is the establishment in 1980 of the Jordanian Engineering Company with an expected 50 per cent private sector participation.

The expansion of the Jordanian manufacturing sector is constrained by a small domestic market and limited regional export demand growth as long as oil prices do not recover. Growth during 1985 and 1986 was negligible but prospects for 1987 are better - UNIDO forecasts[2/] MVA growth of 4.6 per cent and 5.4 per cent in 1987 and 1988 respectively - due to a revival of the domestic economy and OPEC's demonstrated ability to sustain the price of oil at $18 a barrel. Export growth remains constrained also by the very high dependence on the Iraqi market.

A viable development strategy would need to concern itself with the restructuring of the manufacturing sector in particular with reducing its import dependence and expanding its capacity to generate foreign exchange earnings. This would require increased regional co-operation and the stimulation of trade - both imports and exports - with Egypt, India, Pakistan, Syria[3/] and Turkey. Regional co-operation will permit Jordan to exploit her dynamic comparative advantages which are concentrated in product areas that are major users of skilled engineering manpower. The development of a negotiated pattern of regional specialization and the identification of a regional niche which could be efficiently filled by Jordanian manufactured

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1/ Earlier estimates include the currently Israeli occupied West Bank.

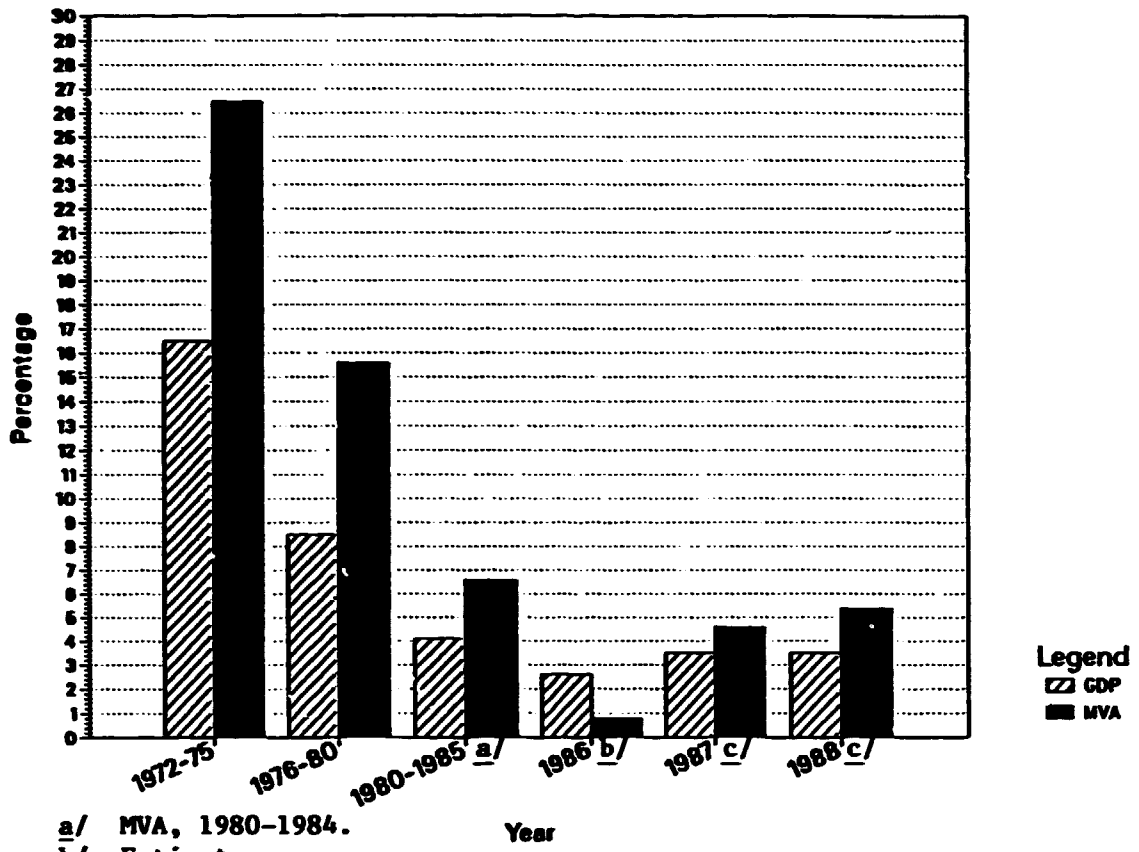
2/ UNIDO, Industry and Development, Global Report 1987, p.328.

3/ India, Pakistan and Syria are significant importers from Jordan but not exporters to it.

products is of considerable importance. It will permit the Jordanian manufacturing sector to absorb the professional and technial employee groups that are most vulnerable to rising unemployment. Unemployment already stands at around 9 per cent and it has been estimated that without government action to create jobs it could rise to 30 per cent of the domestic Jordanian labour force (assuming no significant repatriation from the Gulf States) by 1990.[1/] The share of the manufacturing sector in total employment increased slowly during the 1970s and is now probably a little over 10 per cent (see Annex Table A-4). In most years manufacturing employment growth has lagged behind the growth of employment in mining, the utilities sector and construction. If small- and medium-scale firms are encouraged, capital intensity of Jordanian manufacturing is likely to increase rapidly and the sector's contribution to employment generation can expand significantly in the medium run. It is therefore important that industrial policy concerns itself with promoting the type of structural change that enhances the contribution of the manufacturing sector to both employment creation and the reduction of Jordan's external dependence.

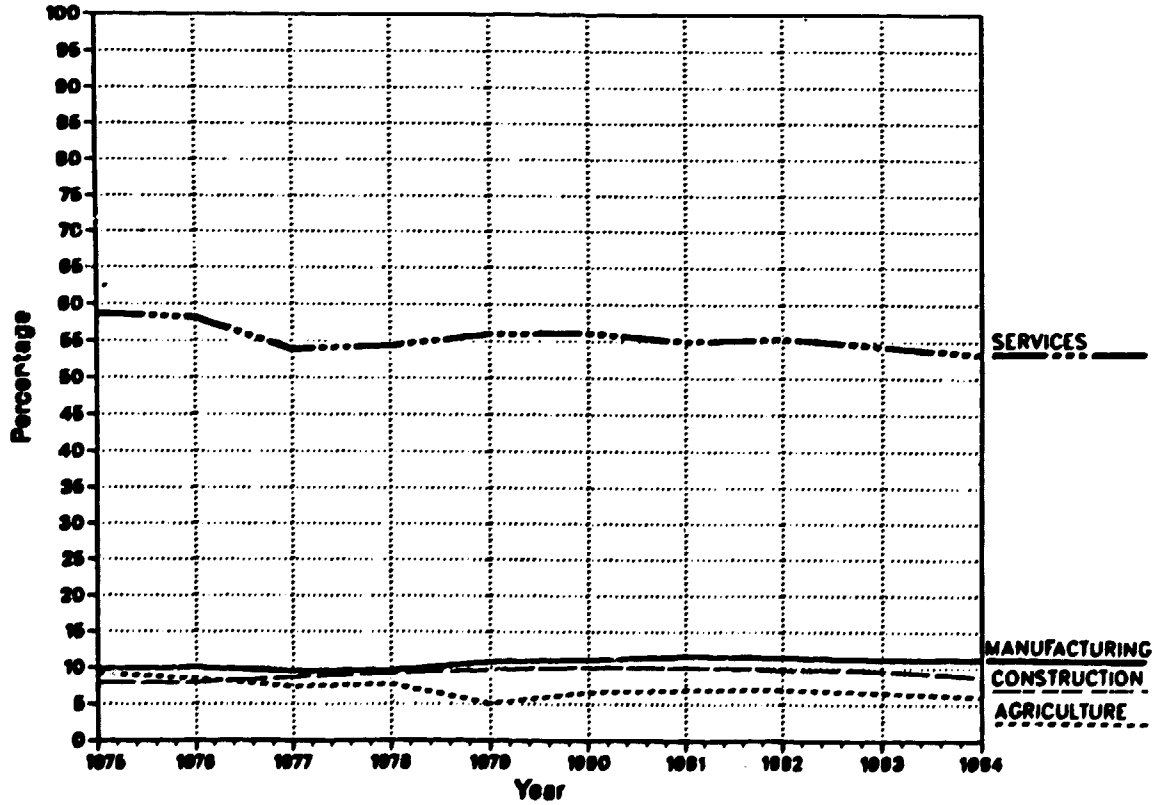
1/ Lloyds Bank, Jordan: Economic Report 1986, London 1986, p.5.

REAL GROWTH RATES OF GDP AND MVA, 1972-1988

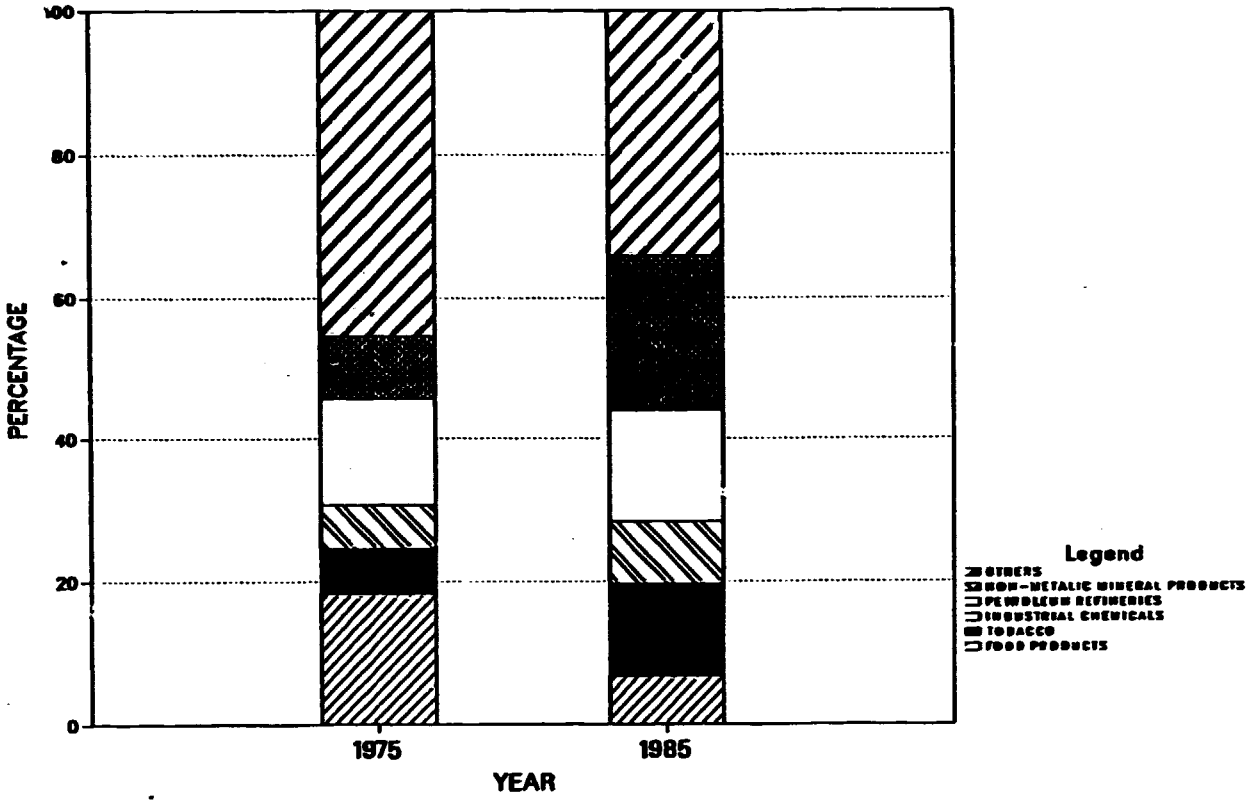


a/ MVA, 1980-1984.
b/ Estimate.
c/ Forecast.

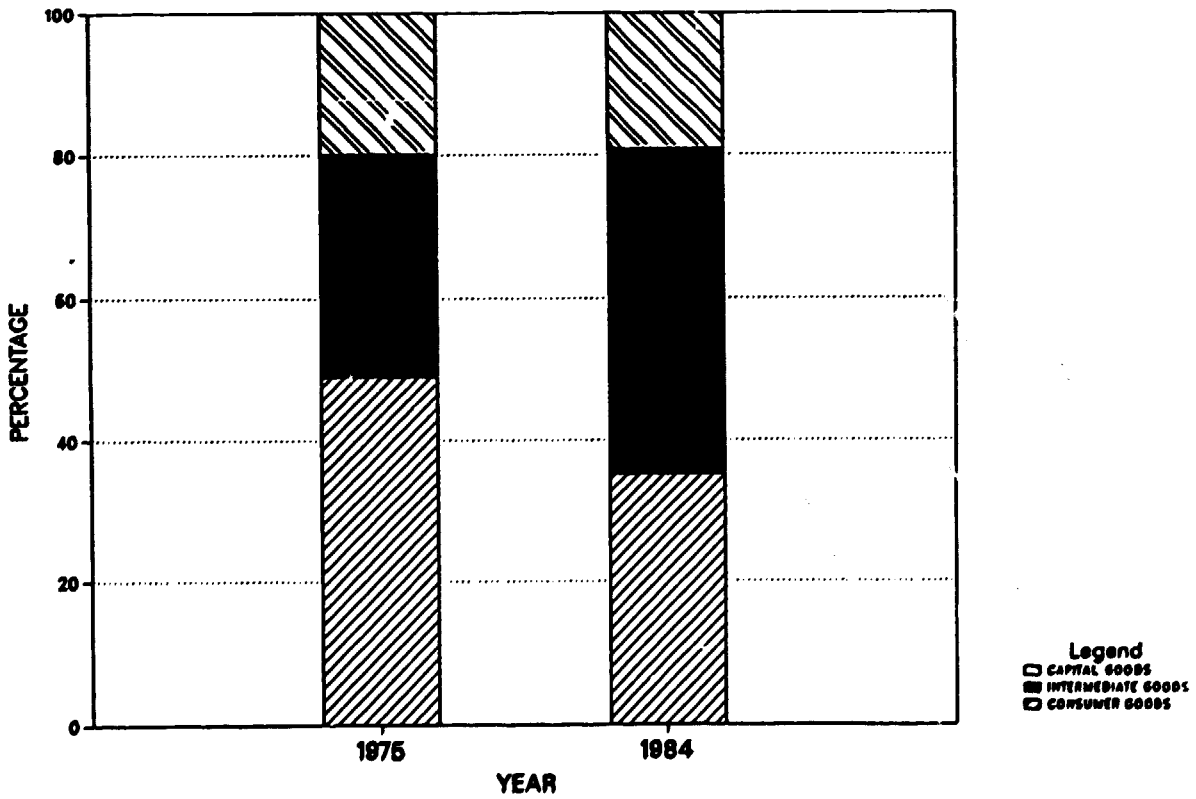
DISTRIBUTION OF GDP BY SECTOR OF ORIGIN, 1975-1984
(at constant 1980 prices)

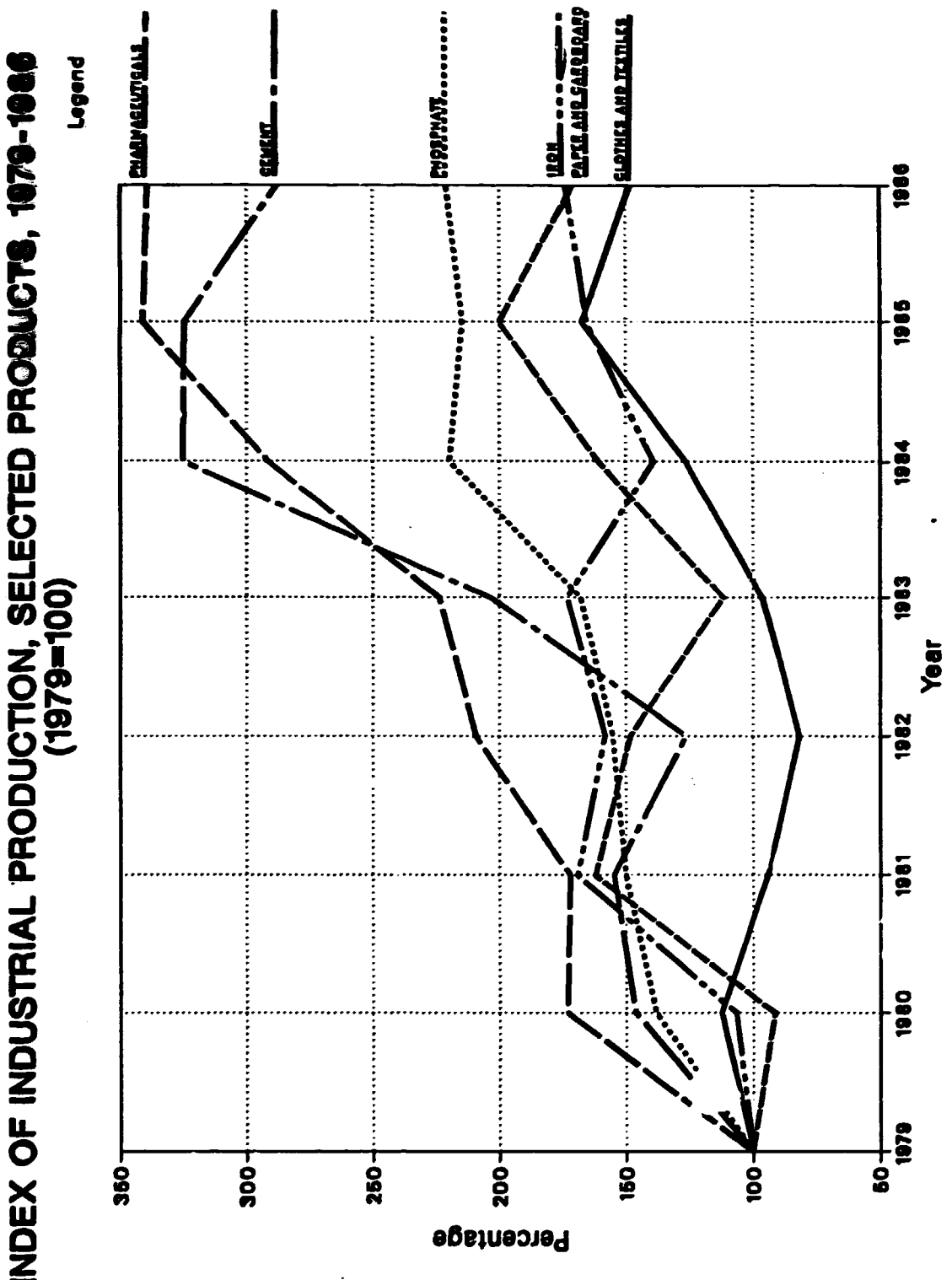


COMPOSITION OF MANUFACTURING VALUE ADDED, 1975 AND 1985 (PERCENTAGE)



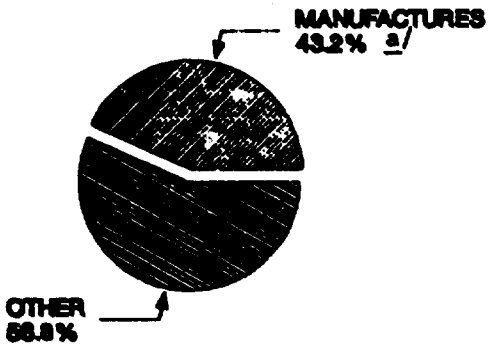
STRUCTURE OF EMPLOYMENT BY TYPE OF INDUSTRIAL ACTIVITY 1975 AND 1984 (PERCENTAGE)



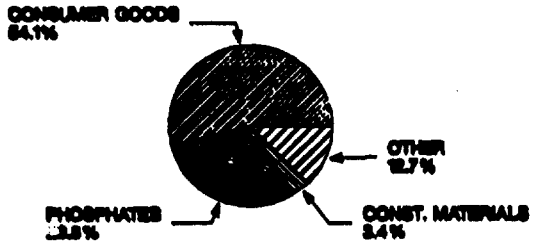

INDEX OF INDUSTRIAL PRODUCTION, SELECTED PRODUCTS, 1979-1986
(1979=100)
Legend
PHARMACEUTICALS
CEMENT
FERTILIZER
IRON
PAPER AND CARDBOARD
CLOTHING AND TEXTILES
Percentage
350
300
250
200
150
100
50
1979
1980
1981
1982
1983
1984
1985
1986
Year

EXPORTS AND IMPORTS

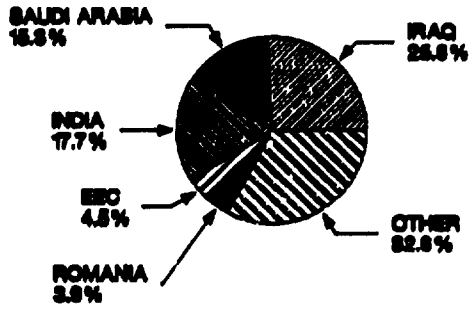
SHARE OF MANUFACTURES IN TOTAL EXPORTS, 1985



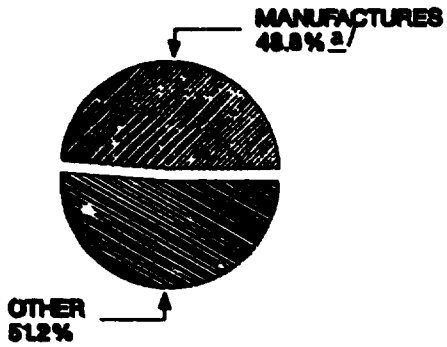
COMPOSITION OF MANUFACTURED EXPORTS, 1986



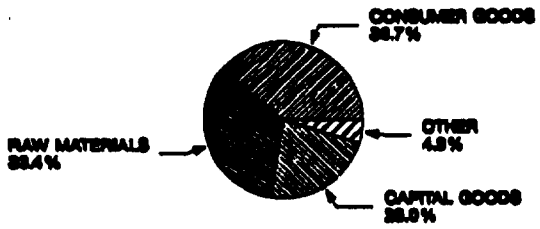
DESTINATION OF EXPORTS, 1985



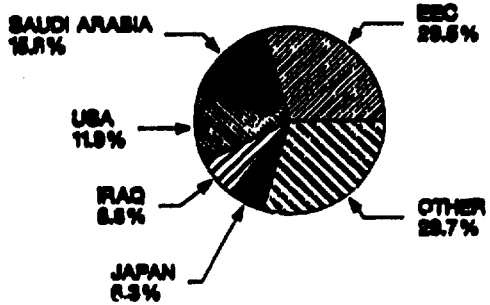
SHARE OF MANUFACTURES IN TOTAL IMPORTS, 1985



COMPOSITION OF MANUFACTURED IMPORTS, 1986



ORIGIN OF IMPORTS, 1985



a/ Narrow definition SITC 5 to 8 less (67 + 68).

2. STRUCTURE AND PERFORMANCE OF THE MANUFACTURING SECTOR

2.1 Growth and structural change

During the 1970s manufacturing was one of the most dynamic sectors within the Jordanian economy, with MVA growing at an annual average rate of 16.5 per cent (Table 2.1). This decelerated to 4.9 per cent per annum during 1980-1986. In both periods fluctuations around the mean were significant - the standard deviation for the 1974-1980 series[1/] is 27.2 and for the 1980-1986 series 18.8. The most rapidly growing branches, as Table 2.2 shows, are cement, phosphate, other chemicals, paper products and iron. There is a clear pattern of steady growth in these product areas during the 1970s, but all of them experienced significant fluctuations in production levels during 1980-1986.

Table 2.1: Growth of manufacturing value added, 1970-1988 (at 1980 prices)

Year	Manufacturing value added ($ million)	Growth rate (per cent)	Share of GDP (per cent)
1970	78.57		4.34
1971	76.86	-2.18	4.20
1972	86.86	18.42	4.49
1973	102.85	18.42	5.70
1974	142.57	38.61	7.90
1975	176.00	23.45	9.83
1976	203.43	15.58	9.83
1977	224.28	10.25	9.51
1978	269.14	20.00	9.56
1979	329.14	22.29	10.84
1980	363.42	10.42	11.06
1981	405.14	11.48	11.60
1982	425.71	5.08	11.36
1983	446.85	4.97	11.20
1984	468.56	4.86	11.19
1985[a/]	479.07	2.24	11.10
1986[a/]	483.00	0.81	11.01
1987[b/]	519.00	4.57	11.60
1988[b/]	547.00	5.44	11.80

Source: UNIDO Data base.

a/ Estimate.
b/ Forecast, UNIDO, Industry and Development: Global Report 1987, p.328.

1/ Earlier statistics include estimates of manufacturing value added in the West Bank and are therefore not comparable.

Declining industries with production levels well below the 1979 benchmark included batteries, soft drinks, alcoholic beverages and animal feedstuffs.[1/] Table 2.2 gives the general impression that the natural resource-based industries have suffered less during the recession than the consumer goods branches. Another weak performer in growth terms during the 1980s was the batteries production branch - the production index stood at 22.3 in 1986 (1979 = 100). This, however, represented a near doubling of the index value for this product group in comparison to 1982 (when the index for batteries stood at 37). Similarly although the production level in the iron and steel group was well above the 1979 level, it was significantly below the value in the production index of the natural resource-based product groups - such as chemicals, phosphate and cement. Moreover, fluctuations in growth were wider for iron than the resource-based products. This would suggest that the capital goods branches had also experienced some difficulties during the recession.

Scattered data on the growth of MVA in some industrial branches in Jordan during 1975-1982 is presented in Annex Table A-6. The highest MVA growth is recorded for industrial chemical branch. Other chemicals and petroleum products (including potash) are also shown as having higher growth rates. But non-resource-based products - such as iron and steel and tobbaco are also listed as high growth performers. Due to difference in coverage and classification systems adopted, the findings in the two Tables (2.2 and A.6) are not strictly comparable. However, it is possible to discern a distinct deterioration in the growth performance of the consumer and capital goods branches during the 1980s. During the latter half of the 1970s some of the branches experienced higher growth rates than the natural resource-based products.

However, differences in branch growth rates during the previous decades have not been large enough to lead to major changes in the structure of manufacturing production. Table 2.4 shows a decline in the relative share of the consumer goods industry in aggregate MVA from 39.7 per cent in 1975 to 29.8 per cent in 1985 (consumer goods branches are defined as ISIC 311-324). Most of the decline is due to the fall in the share of the food manufacturing - cut by almost two thirds from 18.3 per cent in 1975 to 6.8 per cent in 1985. The share of the resource-based branches (here defined as ISIC 351 to 369) stood at 33.4 in 1975. By 1985, this share has increased to 44 per cent - with non-metallic mineral products replacing food manufactures as the largest industrial branch in Jordan. The share of the capital goods industries (ISIC 371 to 385) dropped from 17.7 per cent in 1975 to 11.7 per cent in 1985 - with the share of the iron and steel sector falling from 13.2 per cent to 3.0 per cent.

1/ The index for wood products in 1986 stood at 65 (1979=100). But this represented a one year fall. Production was well above the 1979 level or all other years in this branch.

Table 2.2: Index of industrial production, 1976-1986
(1979=100)

Year	Index number	Food items	Soft drinks	Alcoholic drinks	Fodder	Cigarettes and matches	Clothes and textiles	Footwear and leather	Plastic and sponges	Pharmaceutical	Paints	Detergent and soap	Iron	Cement	Wood Products	Other	Petroleum products	Phosphate	Paper and Cardboard	Batteries	Electricity
		2.9	3.0	1.1	3.1	12.2	2.6	1.6	1.7	(2.3)	(1.2)	(3.2)	(12.6)	(3.5)	(1.5)	(1.3)	13.0	17.8	1.6	1.0	12.8
1976	66.5	68.5	46.6	88.1	98.6	65.8	64.8	98.5	49.6	76.4	45.1	45.4	77.1	93.5	---	---	70.8	60.1	75.3	102.9	51.9
1977	69.0	60.2	68.0	82.8	81.3	73.1	61.4	105.9	77.7	63.0	67.2	46.4	78.8	86.3	---	---	72.4	62.5	73.4	118.1	62.2
1978	84.7	63.7	74.2	79.8	100.2	78.0	80.6	119.4	138.4	100.0	78.2	66.6	80.6	89.0	---	---	87.5	82.0	64.8	95.9	76.3
1979	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1980	119.5	106.8	109.7	104.4	93.0	123.7	112.5	99.9	99.1	173.1	92.4	117.5	106.9	146.4	166.7	104.6	105.7	138.3	91.6	106.6	121.9
1981	139.2	111.1	118.6	143.2	108.0	140.0	94.3	102.6	102.9	172.0	103.6	133.7	169.0	134.7	142.1	164.6	126.9	139.1	162.1	90.1	135.0
1982	143.8	130.2	62.1	158.3	124.7	139.8	81.8	98.4	108.6	209.3	109.4	114.9	158.3	126.5	149.4	170.1	146.0	155.3	148.9	37.4	169.8
1983	150.9	117.3	65.7	119.4	119.1	119.6	96.3	104.7	99.6	223.8	122.8	86.1	173.2	203.6	103.3	212.8	144.2	167.8	111.7	49.7	207.1
1984	181.2	136.8	86.9	135.6	118.9	131.8	126.4	107.0	92.6	291.3	120.9	149.8	139.1	325.1	134.6	205.8	144.9	219.7	160.8	66.4	240.6
1985	185.2	142.2	78.1	89.6	90.3	107.7	167.3	108.7	89.1	341.1	113.7	98.5	165.5	324.6	128.4	195.6	141.1	214.6	200.0	65.8	263.5
1986	187.8	97.9	69.0	73.2	87.8	100.?	148.2	118.7	114.1	339.2	95.6	175.3	173.7	287.9	65.0	115.0	134.2	221.0	170.5	72.3	323.7

Source: Central Bank, Monthly Statistical Bulletin, March 1987, pp. 76-77.

Table 2.3 shows physical output of selected manufacturing products. Manufacturing trends revealed by indices of industrial production, as indicated in Table 2.2, are corroborated by the physical output data presented in Table 2.3. In volume terms, the production of potash was marked by high output in 1986, representing a 21.3 per cent increase over the previous year. Textiles and iron also recorded significant increases in the volume of production in 1986.

Table 2.3: Physical output of selected manufacturing products, 1984, 1985 and 1986

Product	Unit	1984	1985	1986
Phosphate	000 tons	6,213.1	6,067.1	6,249.2
Potash	000 tons	486.0	908.2	1,102.0
Fodder	000 tons	61.2	45.9	44.6
Alcoholic drinks	000 litres	7,202.0	5,547.2	5,457.2
Cigarettes	million units	4,341.9	3,538.1	3,327.7
Textiles	000 metres	1,201.5	2,055.6	2,055.8
Spinning	tons	1,831.1	1,660.3	987.0
Upper leather	000 m^2	199.3	180.2	222.3
Sole leather & wool	tons	43.9	29.3	18.1
Fertilizers	000 tons	541.0	510.5	551.1
Chemical acids	000 tons	1,194.6	1,007.6	1,024.8
Detergents	000 tons	25.5	15.0	28.1
Cement	000 tons	2,026.3	2,022.9	1,794.7
Iron	000 tons	164.9	198.4	209.6
Metallic pipes	000 tons	14.7	14.2	12.5
Petroleum products	000 tons	2,510.9	2,423.9	2,257.1
Paper & cardboard	000 tons	18.0	21.1	15.1
Liquid batteries	000 units	50.1	49.6	55.7

Source: Monthly Bulletin of Statistics, February 1987.

The general inference arrived at when looking at the growth rates is, therefore, substantiated by the evidence presented in Table 2.4. The natural resource-based industries have performed better during the recession than either the consumer or the capital goods branches and now account for over two fifth's of Jordan's MVA and almost two thirds of gross manufacturing output (up from about 29 per cent in 1975). Declining world prices for phosphate and potash and the rapid growth of the chemical and petrochemical branches in West Asia may mean that the further expansion of resource-based industries in Jordan is somewhat restrained. Attention will then have to shift to the development of the engineering industries in which Jordan has the possibility

Table 2.4: Structure of manufacturing production and value added, 1975-1985
(in Dinar)

Description (ISIC)	Gross output (thousands) Producer val. 1975	Gross output (thousands) Producer val. 1985	Gross output Share in total (percentage) 1975	Gross output Share in total (percentage) 1985	Value added (thousands) Producer val. 1975	Value added (thousands) Producer val. 1985	Value added Share in total (percentage) 1975	Value added Share in total (percentage) 1985
TOTAL MANUFACTURING(300)	87573	971101	100.0	100.0	34339	237396	100.0	100.0
Food products(311)	19435	78249	22.2	8.1	6100	16159	18.3	6.8
Beverages(313)	3324	22252	3.8	2.3	1160	9536	3.4	4.0
Tobacco(314)	3535	52137	4.0	5.4	2150	30544	6.3	12.9
Textiles(321)	4201	16174	4.8	1.7	1200	4412	3.5	1.9
Wearing apparel,except footwear(322)	4666	12512	5.3	1.3	1650	5059	4.8	2.1
Leather products(323)	3041	2400	3.5	0.2	650	707	1.9	0.3
Footwear,except rubber or plastic(324)	1450	8339	1.7	0.9	500	4359	1.5	1.8
Wood products,except furniture(331)	109	1067	0.1	0.1	79	428	0.2	0.2
Furniture,except metal(332)	2081	20317	2.4	2.1	1571	8501	4.6	3.6
Paper and products(341)	1207	27133	1.4	2.8	350	5893	1.0	2.5
Printing and publishing(342)	1566	10558	1.8	1.1	600	3956	1.7	1.7
Industrial chemicals(351)	3910a/	81833a/	4.5a/	8.4a/	2100a/	20505a/	6.1a/	8.6a/
Other chemicals(352)	...	...	...	...	...	...	...	...
Petroleum refineries(353)	9631	376182	11.0	38.7	5150	37159	15.0	15.7
Misc. petroleum and coal products(354)	0	0	0.0	0.0	0	0	0.0	0.0
Rubber products(355)	538	897	0.6	0.1	100	210	0.3	0.1
Plastic products(356)	1459	20293	1.7	2.1	953	7137	2.8	3.0
Pottery,china,earthenware(361)	0	0	0.0	0.0	0	0	0.0	0.0
Glass and products(362)	240	3322	0.3	0.3	95	834	0.3	0.4
Other non-metallic mineral prod.(369)	9370	129579	10.7	13.3	3051	51634	8.9	21.8
Iron and steel(371)	12763b/	45050c/	14.6b/	4.6c/	4543b/	7119c/	13.2b/	3.0c/
Non-ferrous metals(372)	...	...	...	...	...	...	...	...
Fabricated metal products(381)	...	54085d/	...	5.6d/	...	18847d/	...	7.9d/
Machinery,except electrical(382)	29	...	0.0	...	17	...	0.0	...
Machinery electric(383)	1316	2090	1.5	0.2	685	868	2.0	0.4
Transport equipment(384)	2230	2297	2.5	0.2	865	727	2.5	0.3
Professional & scientific equipm.(385)	0	0	0.0	0.0	0	0	0.0	0.0
Other manufactured products(390)	1472	4336	1.7	0.4	570	2773	1.7	1.2

Source: Statistics and Survey Unit, UNIDO. Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

a/ 3510 includes 3520
b/ 3710 includes 3720, 3810
c/ 3710 includes 3720
d/ 3810 includes 3820

of utilizing her comparative regional advantage in the possession of relatively skilled manpower: in 1985 the fabricated metal products branch ranked fifth in terms of its share of both MVA and gross manufacturing output. The growth of this and other capital goods branches depends crucially upon regional economic co-operation. This is so because Egypt, Syria, Pakistan and India are all developing an expanding capacity to produce and export commodities with a relatively high skilled labour content and competition among them can easily lead to overproduction on a regional level. Hence the need for a regional integration of national investment, production and export programmes within the capital goods sector.

2.2 Performance and efficiency.

The differential growth paths of Jordanian manufacturing branches ought at least in part to be explained by differences in the performance of firms in the different sectors. Table 2.5 provides estimates of the relative size of gross profit in the Jordanian manufacturing. The average value for the gross profit to value added ratio is 0.72 with a very small standard deviation. This is not typically different from the average value of this ratio estimated by UNIDO as + 0.66 for a representative sample of 28 developing countries during the late 1970s. [1/] There is some evidence that while wage rates have remained constant during the period material costs have risen significantly. Thus, the average value added to gross output ratio fell from 0.40 during 1974-1980 - not significantly different from the average value of this ratio (0.42) calculated by UNIDO for a representative group of developing countries in 1978 - to 0.28 during 1980-1984. The gross profit to gross output ratio also declined from an average of about 29 per cent during 1974-1980 to 19.9 per cent during the recession of 1981-1984. Non-wage inflationary pressure and increased cost of material imports have significantly affected the financial performance of the Jordanian manufacturing sector during the early 1980s.

Some branches have been more significantly affected than others. Table 2.6 presents estimates for the gross profit and value added ratios at a branch level for 1974, 1979 and 1984. The five leading branches in terms of the gross profits ratio in 1974 were plastic products, food manufactures, iron and steel, industrial chemicals and electrical machinery. In 1979 this list included tobacco, wood products and furniture and omitted plastics, food products and electrical machinery. In 1984 the leading branches in terms of the gross product ratio were tobacco, rubber, non-metallic minerals, beverages and textiles. In general, the natural resource-based industries and consumer goods industries had maintained relatively high profit rates while the profit rates by the capital goods branches had declined substantially. In terms of the value added indicator the five leading branches in 1984 were rubber products, tobacco, other manufactures, non-metallic minerals products and beverages. In 1979 this list had included transport equipment furniture and

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1/ UNIDO, Industry in a Changing World, New York, 1983, Sales No.E.83.II.B.S., p.242.

Table 2.5: Performance of the manufacturing sector, 1974-1984

Year	Gross Profit JD'000	Gross Profit wages	Gross Profit value added	Value Added gross output	Gross Profit employment JD
		(percentage)			
1974	21,478	2.99	0.75	0.46	1,385
1975	25,523	2.90	0.74	0.36	1,344
1976	29,122	2.70	0.73	0.39	1,507
1977	33,833	2.58	0.72	0.38	1,604
1978	38,400	2.09	0.68	0.38	1,600
1979	61,527	2.55	0.72	0.42	2,859
1980	86,442	2.70	0.73	0.43	3,505
1981	114,112	2.65	0.73	0.29	4,045
1982	124,294	2.49	0.71	0.27	4,268
1983	134,239	2.39	0.71	0.30	4,243
1984	153,070	2.35	0.70	0.26	3,996

Source: UNIDO Data base.

wood and omitted other manufactures and beverages. However, the national resource-based industries experienced several difficulties during the recession. Whereas the value added ratio declined from an average of 42.41 per cent for the capital goods branches in 1979 to an average of 42.32 per cent in 1984, it fell from 45.06 per cent in 1979 to 36.21 per cent in 1984 for the natural resource-based branches. This means that the increase in unit material costs was greater for the latter group of industries, than for the former. The average gross profit to gross output ratio for the capital goods industries declined from an average of 32.6 per cent in 1979 to 22.35 per cent whereas the corresponding decrease for the natural resource-based industries was from 24.7 per cent in 1979 to 23.6 per cent in 1984. The higher growth rates of the natural resource-based industries (see Tables 2.1 and 2.2) were thus mainly financed by high levels of state investment and support from the public sector.

The performance of the consumer goods industries contrasted significantly within that of the other two groups. The average value of the gross profit to value added ratio rose from 63.8 per cent in 1979 to 65.8 per cent in 1984. The gross profit to gross value of output ratio stood at 27.8 per cent in 1979 and it rose to 28.7 percent in 1984. The domestic demand-oriented consumer goods industries - with export output ratios ranging from 2 to 9 per cent as against export output ratios of 12 to 35 per cent for the natural resource-based industries [1/] - thus, were the only group which experienced an increase in gross profit rates and presumably also in economic efficiency during the first half of the 1980s.

1/ World Bank, Jordan: Export Strategy and Export Promotion in Manufacturing Industries, Report No. 4170-JO, Washington, 1983.

Table 2.6: Performance indicators for Jordanian manufacturing branches, 1974, 1979 and 1984
(percentage)

Sub-sectors of manufacturing (ISIC)	Gross Profit / Value added			Value added / Gross output		
	1974	1979	1984	1974	1979	1984
Food products (311)	85.7	64.7	65.5	38.9	24.4	24.4
Beverages (313)	62.1	63.9	79.8	34.0	39.8	51.3
Tobacco (314)	74.8	90.3	92.9	58.5	64.2	75.7
Textiles (321)	61.8	49.7	69.8	28.6	33.2	37.9
Wearing Apparel, except footwear (322)	64.6	71.4	51.7	32.0	51.9	39.0
Leather product (323)	49.4	43.5	42.1	23.5	12.7	33.2
Footwear, except rubber or plastic	32.2	63.5	58.8	33.9	49.2	46.9
Food products, except furniture	58.9	82.6	38.0	72.3	53.8	20.1
Furniture, except metal (332)	60.0	78.5	25.1	67.0	56.2	20.9
Paper and products (341)	64.5	72.2	53.9	33.4	49.8	26.0
Printing and publishing (342)	38.2	57.0	41.0	46.3	43.8	42.0
Industrial chemicals (351)[a/]	78.9	74.3	61.9	54.5	37.3	13.7
Petroleum refineries (353)	74.7	61.4	66.1	51.8	38.1	10.9
Rubber products (355)	11.1	67.1	88.9	18.2	58.8	75.0
Plastic products (356)	91.9	76.7	64.2	65.4	38.9	30.9
Glass and products (362)	11.9	16.0	30.1	42.1	45.0	33.5
Other non-metallic mineral products (369)	75.9	68.8	81.0	66.8	52.3	53.2
Iron and steel (371) includes (372)	80.9[b/]	83.7	67.7	35.0[b/]	31.1	16.8
Fabricated metal prod. (381)	...	...	...	...	...	...
Machinery, exc. electrical (382)	46.7	73.3[c/]	51.2[c/]	55.6	47.4[c/]	37.6[c/]
Machinery electric (383)	78.1	47.0	50.5	54.0	38.4	47.1
Transport equipment (384)	58.0	71.8	43.6	41.8	73.0	57.8
Other manufactured products (390)	75.3	70.3	66.2	38.5	48.8	72.6

Source: UNIDO data base.

a/ Including 3520.
b/ Including 3810.
c/ Including 3820.

It is widely recognized that gross profit rates are a highly imperfect measure of changes in industrial efficiency.[1/] Attempts to measure changes in efficiency have usually involved the estimation of production functions for the manufacturing sector. Thus UNIDO estimated a constant elasticity of substitution (CES) production function for Jordanian manufacturing using cross section data for 1972. Intermediate industries were found to have relatively high values for the elasticity of substitution parameter and were shown to have had higher rates of factor productivity growth.[2/] A CES production function was estimated for the entire manufacturing sector for 1984 and the elasticity substitution parameter was not found to be significantly different from unity at 10 per cent confidence level. Disaggregation by industrial branch was not possible because of lack of availability of firm level data for any years after 1972.

Estimates of productivity growth for the period 1975-1982 are reproduced in Table 2.7. Aggregate labour productivity (excluding agriculture) is estimated at the exceptionally high ratio of 5 per cent per annum during 1975-1979. Productivity growth was erratic reflecting the impact of the implementation phases of large-scale industrial projects. A very high rate of negative productivity growth (i.e., productivity decline) was recorded for the non-metallic mineral product branch. Table 2.7 shows a substantial decline in productivity growth during 1980-1982 although non-natural resource-based manufacturing is still shown to have achieved an annual productivity growth rate of 5.7 per cent during 1980-1982. The fall in productivity growth is associated with falling domestic and export demands leading to lower rates of capacity utilization, a high labour turnover rate and skill shortages. Projections for the period 1980-1990 (Annex Table A-7) expected productivity growth to remain at the level of about 2.5 per cent for most manufacturing branches[3/]. The persistance of low productivity growth - despite rising skill levels - is a consequence of declining investment rates. Investment rates in Jordan have depended crucially upon the growth of oil revenues in the Gulf States. Since oil earnings are likely to stagnate and Jordan's current account deficit and debt burden is unlikely to fall in the medium run investment rates cannot be expected to reach levels attained in the mid-1970s and during 1979-1981.

Information on capacity utilization in the production of a wide range of product categories falling under selected sub-sectors of manufacturing, namely, food, textiles, chemicals and building material industries shows mixed trends (Annex Table A-8). Capacity utilization rate is calculated on the basis of installed capacity for physical output and actual volume of production in each product category. The average capacity utilization for the four selected sub-sectors of manufacturing stands at 57.4 per cent. With a capacity utilization rate of 62.8 per cent, the building materials industry ranks first, while the textile industry reveals a group average of 57 per cent in capacity utilization followed by food industries (55.2 per cent) and chemical industries (54.6 per cent). However, the average rate of capacity utilization in each sub-sector cannot be generalized to product categories in view of the fact that some products recorded near-optimum level of capacity utilization, while the industry, as a whole, registered a capacity utilization rate far below the group average. For example, diammonium phosphate,

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1/ Singh, A. and C. Whitington, Growth Profitability and Valuation of Firms, Cambridge University Press 1968, p.17-21.

2/ UNIDO, Industrial Development Profile of Jordan: Problems and Prospects, ICIS 159, 1980, pp.57-58.

3/ The non-metallic mineral sector is an exception because a large phosphate mine is expected to start production in 1989.

Table 2.7: Annual average productivity growth by sector, 1975-1979 and 1980-1982 (percentage)

	1975-1979	1980-1982
TOTAL	5.4	3.1
Agriculture	3.7	12.4
Non-agriculture	5.2	2.9
Mining and Quarrying	5.6	-8.3
Chemical and Petroleum Production	6.5	6.3
Non-metallic mineral production	-10.1	-1.6
Other manufacturing	9.7	5.2
Electricity, gas and water	-0.9	1.5
Construction	2.0	2.2
Wholesale and retail trade, restaurants and hotels	20.2	4.1
Transport	4.5	3.3
Finance, insurance and real estate	5.8	1.8
Public administration and defense	0.7	2.8
Other services	-6.3	0.3

Source: World Bank, Jordan: Issues of Employment and Labour Market Imbalance, Report No. S117-30, 1986, p.14.

phosphoric acid, paste detergents and ball pens utilized over 97 per cent of the installed capacity, while the chemical industry as a whole suffered from under- utilization of capacity to the tune of 45.4 per cent in 1984. Yet another striking example is the production of glass sheets which utilize only 10.1 per cent of its installed capacity, while the building materials industry as a whole was operating at 57.4 per cent of its installed capacity in 1984. Industries that severely suffer from underutilization of capacity[1/] are: rubber (35.0 per cent), wall pastes (34.7 per cent), matresses (34.2 per cent), school uniforms (31.0 per cent), oils and fats (30.0 per cent), cement blocks (30.0 per cent), polystyrene boxes (27.1 per cent), wool-mix blankets (26.0 per cent), wool carpets (23.5 per cent), aluminium fluoride (23.0 per cent), acrylic carpets (17.3 per cent), toilet soap (15.4 per cent), and glass sheets (10 per cent). Demand constraints seem to constitute the principal cause for industrial idle capacity in these branches of manufacturing.

2.3 Investment and ownership patterns

The share of the manufacturing and mining sector in total investment during the First Five-Year Plan (1970-1980) amounted to 25.9 per cent[2/]. Industry's share fell to 22.9 per cent in allocations made during the second plan period (1981-1985). Total allocations amounted to JD758.8 million of which JD716.8 million (98.3 per cent) were expected to be obtained from the private and "mixed" enterprises.[3/] This period, however, saw significant shortfalls in implementation of investment targets. Gross fixed capital

1/ Figures in parentheses indicate the rate of capacity utilization in 1985.
2/ Of the total investment 29.96 per cent was allocated to this sector, but industry's share of actual investment was only 26 per cent. Government of Jordan, Brief Review of Jordan Economy, Amman 1980, p.17.
3/ "Mixed" enterprises are joint ventures including both public and private capital.

formation which had been targeted to grow at an annual average rate of 12.2 per cent actually increased at the rate of 0.8 per cent only.[1/] The total implementation rate during 1981-1985 was 79.9 per cent. Actual investment had exceeded planned investment by 15 per cent during the first plan period.[2/] and much of the investment during the 1981-1985 period represented a financing of the higher than anticipated cost of capital imports.

The Second Five-Year Plan allocated about JD759 million for investment in the mining and industry sector, of which JD230 million were earmarked for potash, fertilizers and phosphate rock projects. The Plan's industrial strategy concentrated on large capital-intensive industries, some export-oriented, such as potash and fertilizers, and some import-substitution oriented, such as glass and timber. During the first two years of the Plan, investments by this sector actually exceeded the Plan targets but fell short of the targets in the third and fourth years because of the economic recession after 1982 which caused investments to decline in all economic sectors.

During the same period (1981-1985), the total value of actual investments amounted to JD599 million, compared to JD759 million anticipated by the Plan, or 78.9 per cent of the Plan target. However, this relatively high realization ratio did not so much reflect actual physical achievement in project implementation as did an increase in prices which led to a rise in investment costs of certain projects. For example, whereas the Plan had expected that JD93 million would be spent on potash projects, to produce potassium chloride, bromine, magnesium oxide and sodium chloride (salt), actual investments exceeded JD20 million, despite the fact that three of the projects (bromine, magnesium oxide and socium chloride) were not implemented. Because of increases in investment costs, unsatisfactory implementation and the inability of certain major industries, such as fertilizers and potash, to attain capacity targets on time, average product growth in this sector fell below that envisaged by the Plan although investment costs in current prices were reasonably close to projected values.

In actual terms, public sector investments amounted to JD58.4 million as against JD42 million envisaged by the Plan, whereas private and mixed sector investments totaled JD540 million, compared to a targeted JD716.8 million. Thus, while the public sector exceeded its investment target the implementation rate within the private and mixed sector was 75.3 per cent.

The present Plan allocates a sum of JD393.2 million to the industry and mining sector (Annex Table A-9) - this represents only 12.6 per cent of total investment allocations, significantly lower than the share of this sector in both planned and actual investments in the First and Second Five-Year Plans. The share of the service sector in aggregate investment - particularly the amount allocated to housing and government buildings - has gone up from 29.15 per cent over 1981-85 to almost 40 per cent during the present plan period. Its share of total invesmtent has increased by 220 per cent.

1/ Government of Jordan, Five-Year Plan for Economic and Social Development 1986-1990, Amman 1986, p.36.

2/ Ibid, p.97.

The private and mixed sector is expected to invest JD340.8 million in the industry and mining sector - this represents 86.7 per cent of total sectoral investment. This is significantly lower than the share of the private sector in actual investment within the mining and industrial sector during the second Plan period.

Table 2.8 lists the major investment projects within the industrial sector during 1986-1990. Science and technology projects, and manpower projects are presented in Annex Table A-10 and A-11, respectively. The largest allocations are for the development of the phosphate and associated chemical industries. Sizeable allocations have also been made for engineering projects and for the development of small and medium sized industries - included within the category of 'other private sector projects'.[1/] The share of the small- and medium-level projects in total sectoral investment stands at 22 per cent.

The government has laid special emphasis on developing private sector enterprise within manufacturing. Nevertheless, the government continues to play a major role in the financing of industrial investment - particularly in the large scale sector.

As Annex Table A-12 shows, the government's nominal equity share in mixed public-private enterprises (including participation by autonomous public institutions) varies from less than 25 per cent (in 22 companies) to between 25 and 50 per cent (in seven companies) and to 50 per cent and more (in five companies); and its average participation in the enterprises' combined equity stands at 18.3 per cent. However, as far as the paid-up capital is concerned, average government participation is 43.6 per cent. In some companies, like Jordan Cement Co., Agricultural Product Processing Co., Jordan National Maritime Co., and Arab International Hotels Co., the government originally planned to own only a portion of outstanding equity, but is at present the sole owner. In some others like Jordan Mineral Co., Jordan Glass Co., Industrial Development Co. and Jordan Company for Tourism and Mineral Water the government intended to be a minority shareholder but now holds a majority interest. In 12 companies the government's share and its outstanding equity is the same as originally intended, and is marginally lower in only one company (Jordan Fertilizer Industry Co.).

The Central Government, in addition to equity participation in the companies listed in Annex Table A-12 also has a substantial indirect participation in commercial and industrial activities through independent equity participations of some of the autonomous public institutions (e.g., Pension Fund, Post Office Savings Bank, Social Security Corporation, Jordan University) as well as through some of the same mixed enterprises listed in Annex Table A-12 (e.g., Industrial Development Bank). The Industrial Development Bank has equity participations in 20 private and mixed enterprises; the Pension Fund is part owner in 25 companies; the Post Office Savings Bank is participating in 60 companies; the Social Security Corporation has equity participation in five companies; and the Jordan University is engaged, through its savings fund, in eight companies.

1/ These include projects in pharmaceuticals, food manufacturing, garments, construction materials, electrical appliances, medical appliances, furniture, toys, textiles, packaging, insecticides, paints, etc. Ibid, p.573.

Table 2.8: Summary of mining and industrial projects, 1986-1990
(JD '000)

A. Investment Projects	1986	1987	1988	1989	1990	Total
Amman International Fair	1500	800	1000	1200	1500	6000
National Center for Standards and Measures	175	500	1000	1500	2000	5175
Irbid Industrial Estate	1770	1800	1000	—	—	4570
Amman Industrial Estate/Sahab	1850	2000	1000	1000	—	5850
Aqaba Industrial Estate	—	500	500	1500	—	2500
Salt Industrial Estate	400	100	400	2400	—	3300
Industrial Zones	200	800	1000	1000	5000	8000
Modification and Production Increase	6700	1600	—	—	—	8300
Potassium Sulphate	30	20	4500	20750	29700	55000
Studies	300	300	500	500	400	2000
Sodium Carbonate (Sodash)	—	30	20	19300	19200	38550
Production Increase at the Two Sulphuric Acid Units	1000	1500	—	—	—	2500
Expansion of Fertilizer and Aluminum Floride Storehouses	—	—	—	2500	—	2500
Modification of the Cooling System of the Phosphoric Acid Plant	1000	1000	1000	—	—	3000
Arab Engineering Industries	6711	5700	3500	3000	—	18911
Household and Irrigation Water Pumps	56	2250	4500	4500	—	11306
Mechanical Workshop	40	1480	1480	—	—	3000
Shidiya Phosphate	1571	2272	13327	39585	39846	96601
Second Stage of Ruseifa Mines Renewals	1300	1900	—	—	—	3200
Two Phosphate Cake Processing Units	1200	1000	900	1000	—	4100
Removal of Overburden	6000	—	—	—	4300	10300
Improving Productive Efficiency of Mine Equipment	350	650	—	—	—	1000
Veterinary Drugs and Appliances	2450	2500	4650	—	—	9600
Private Sector Projects	12000	15225	17450	18075	25150	87900
Sub Total (A)	46603	43927	57727	117810	127096	393163
B. Other Projects						
Industrial Survey	—	—	—	500	—	500
Industrial Research and Studies	250	250	250	250	250	1250
Support of Industrial Development	600	600	600	600	600	3000
Sub Total (B)	850	850	850	1350	850	4750
Total (A + B)	47453	44777	58577	119160	127946	397913

Source: Government of Jordan: Summary of Five-Year Plan for Economic and Social Development, 1986-1990, 1986, p.124.

Figures on the ownership structure of Jordanian manufacturing enterprises are scarce. The Central Statistical Office does not publish data on the relative share of domestic private, public and foreign participation in manufacturing investment. Figures for the early 1980s suggest that foreign direct investment represented about 35 per cent of joint venture investment in the industrial sector.[1/] Direct foreign investment is of importance in the fertilizer, potash, brewing, ceramics, petroleum refining, cement, wood products and construction material industries. Some major public and joint venture manufacturing enterprises have borrowed significant amounts from Eurocurrency institutions in recent years, but once again time series estimates of such borrowings (and its relative industrial finance) are not available from national statistical sources.

Domestic industrial enterprises have used bank finance as an important source of industrial investment. As Table 2.9 shows industry's share in total outstanding bank credit has been rising gradually over the past decade and currently stands at about 12.7 per cent. During this period credit obtained from the Industrial Development Bank increased from JD3.1 million to JD8.7 million - this represented only 8.6 per cent of total credit extended by specialized financial institutions. Both Annex Tables A-13 and A-14 show that the manufacturing sector is not the most important customer of the banks. Loans to the construction and trade sectors, to municipalities and to private individuals significantly exceed loans to industrial firms.

Table 2.9: Industry's share of outstanding bank credit, 1976-1986[a/]
(JD '000)

	Amount allocated to industry	Total outstanding bank credit	Industry's share (percentage)
1976	21,808	207,091	10.53
1977	26,539	244,055	10.87
1978	36,578	332,799	10.99
1979	56,477	465,059	12.14
1980	68,718	563,856	12.18
1981	82,437	721,347	11.42
1982	98,532	887,171	11.10
1983	118,428	1,030,922	11.48
1984	142,372	1,184,825	12.01
1985	157,165	1,274,416	12.33
1986	176,743	1,395,412	12.66

a/ "Jordan Special Economic Report", Middle East Economic Digest, June 1980, p.17.

1/ "Jordan Special Economic Report", Middle East Economic Digest, June 1980, p.17.

Jordan is one of the few developing countries with a stock market which has been in existance for over a decade. As Table 2.10 shows both the general index and the share price index has been declining since the early 1980s. The cumulative percentage decline in the manufacturing share index during 1981-1986 is over 50 per cent. In such circumstances equity capital is likely to be a major source of finance mainly for large government sponsored by public sector or joint venture projects.

Table 2.10: Share price index, 1978-1986
(1978=100)

Period	General index	Change per cent	Service companies	Electricity companies	Manufacturing and mining companies	Insurance companies	Banks and financial institutions
1978	100.0	-	100.0	100.0	100.0	100.0	100.0
1979	117.9	17.9	126.0	103.6	110.6	134.6	123.5
1980	149.2	26.5	124.9	144.6	145.6	137.3	172.9
1981	184.4	23.6	145.3	155.1	165.0	223.3	224.4
1982	207.8	12.7	203.1	159.9	165.4	283.3	262.8
1983	168.0	-19.2	141.7	122.7	125.6	181.9	238.9
1984	133.7	-20.4	85.4	112.4	106.9	111.4	183.3
1985	127.0	-5.0	63.6	111.3	100.8	96.6	178.4
1986	119.7	-5.7	55.1	114.7	95.5	105.7	167.0

Source: Central Bank of Jordan, Monthly Bulletin of Statistics, March 1986, p.84.

It is not possible to estimate the self-financing ratio for Jordanian manufacturing enterprises because national statistical sources do not provide data on the financing of gross capital formation. However, an attempt was made to explain the investment behaviour of Jordanian manufacturing enterprises by relating estimators of investment behaviour and the strict use of industrial cost and value added within the context of a zero order correlation matrix. The variable related to firms employing 5 persons or more in the mining and manufacturing sector in Jordan. Data were collected during 1984.

The following industries have been considered.

1. Mining
2. Food
3. Beverages
4. Tobacco
5. Textiles
6. Apparel
7. Leather
8. Footwear
9. Furniture
10. Paper
11. Printing and publishing
12. Chemicals
13. Petrol refining
14. Plastics
15. Non-metallic minerals
16. Basic metals
17. Machinery
18. Electrical machinery
19. Transport
20. Other manufactures
21. Chemicals

For each of these industries the following variables have been estimated:

A = Industrial cost (cost of raw material + wages) divided by the value of output at current prices
B = Raw material imports divided by value added at current prices
C = Book value of fixed investment divided by value added at current prices
D = Book value of fixed investment divided by value of output at current prices
E = Value added divided by employment
F = Imported raw material cost divided by cost of total raw material (at current prices)
G = Net revenue divided by value of output (both at current market prices)

The value of these indicators is given in Annex Table A-15. Table 2.11 gives the inter-industry correlation matrix.

Table 2.11: Relationship between investment and the structure of industrial costs and value added in Jordanian manufacturing enterprises,[a/] 1984

	A	B	C	D	E	F	G	
A	1	39656	-.100362	-.145728	-.492099	-.1020551	-.6275318	A
B		1	-.120611	-.446037	-.052489	-.5767653	-.090348	B
C			1	-.7210303	-.328018	-.177927	-.274993	C
D				1	-.267211	-.384375	-.450744	D
E					1	-.2519406	-.193182	E
F						1	-.246319	F
G							1	G

Source: UNIDO.

a/ With 5 or more employees.
b/ Statistically significant at 5 per cent confidence level.

The investment ratios are positively related to the net revenue indicator implying that firms with relatively high earnings are likely to use a portion of these for increased investment. A positive association between investment and net revenue ratios was not discerned in an early UNIDO study of Jordanian manufacturing based on data for 1972.[1/] This might indicate that investment behaviour patterns have changed somewhat in comparison to the early 1970s. Investment indicators are negatively associated with the value added to employment ratio suggesting that in 1984 as in 1972 investment by relatively less capital-intensive firms was higher. A negative relationship is also evident between investment rates and the import cost ratios. This would indicate that firms' needs for imports significantly constrain investment level.

1/ UNIDO, Industrial Development Profile of Jordan: Problems and Prospects, ICIS.159, 1980, p.55.

In 1984, as in 1972, there was positive correlation between the industrial cost ratio and the imports to value added ratio. In 1984 it is the large, relatively capital-intensive and import-intensive firms that have investment constrained by high industrial costs. It is interesting to note that the value added to employment ratio (which can be taken as a proxy for capital intensity) is significantly negatively related with the rate of return indicator - showing that the more capital-intensive firms had relatively lower net earnings in 1984. This once again is contrary to the results obtained from 1972 data when capital-intensive firms with high import costs were found to have had higher net earnings ratios. This finding is reinforced by the positive correlation between the industrial cost ratio and the net revenue ratio. Relatively less capital-intensive industries (with low levels of value added to value of gross production) have performed better in terms of the net rates of return indicator in terms of the analysis presented in Table 2.11.

As in 1972, however, a positive relationship between import content and unit material costs is not strong. Despite the subsidization of import costs, however, costs of production within the larger capital-intensive enterprises rose in the early 1980s and the over-riding conclusion from the analysis presented in Table 2.11 must be that the large-scale sector suffered from significant inefficiencies in 1984. Material costs rose and the rate of return declined substantially. In 1983 the implicit incremental capital output ratio was estimated at 4.3 per cent for large-scale projects as against 1.2 for all other industrial investment during 1981-1985. It was believed that these estimates were on the low sides, and higher levels of investment were required to reach output levels targeted within the industrial sector by the Second Plan. Despite the fact that investment implementation rates were over 70 per cent, output growth recorded within the industrial sector was only 30 per cent of the targeted level. This would suggest that there is an important need to increase industrial efficiency on the one hand and to stimulate the small- and medium-scale sector on the other (at least in 1984), which was significantly superior to that of the larger manufacturing enterprises.

2.4 Regional distribution of manufacturing enterprises

A stimulation of the small-scale sector ought to be linked to a wider manufacturing dispersion of manufacturing enterprise in Jordan. Most manufacturing units are concentrated in a relatively narrow industrial belt between Amman and Zarqa. As Table 2.12 shows both large- and small-scale enterprises are concentrated in the north of the country. The combined share of the Amman and Irbid governates in the MVA of the large establishments in 1984 was 66.74 per cent (Annex Table A-16), but their share in small-scale MVA was 91.08 per cent (Annex Table A-18). The corresponding values for the northern regional share of large- and small-scale manufacturing employment was 77.11 per cent and 90.73 per cent respectively.

Almost 90 per cent of all manufacturing units, both the large- and small-scale, are concentrated in the North of the country. The southern and eastern provinces have experienced very low growth in the rates of both urbanization and industrialization, even the major port city of Aqaba in the south-west of the country hosts very little of manufacturing units.

Table 2.12: Distribution of manufacturing units, employment and value added by governates, 1984
(percentage)

Governate	Units		Employment		Value Added	
	Large a/	Small b/	Large a/	Small b/	Large a/	Small b/
Amman	73.78	68.85	71.04	70.60	63.70	70.57
Irbid	15.05	21.38	6.07	20.13	3.04	20.71
Balqa	8.30	3.70	6.09	3.65	13.70	3.59
Karak	1.78	2.65	11.29	2.46	17.53	2.30
Ma'an	6.05	3.15	5.48	3.13	2.03	3.03

Source: Department of Statistics, Industrial Cencus 1984, Amman 1986.

a/ Employing 5 persons or more.
b/ Employing 1-4 persons.

The current Five-Year Plan recognizes the need to "encourage the establishment of small-, medium-scale and cottage industries suited to local conditions in the various regions.[1/] In order to achieve this a sum of JD2.5 million has been provided for the development of industrial estates, near Aqaba - this compares with an investment of JD13.65 million allocated for the development of industrial estates in the Northern provences. The Aqaba estate is to be managed by the national Industrial Estate Corporation. The Corporation is planning to construct an industrial estate in Aqaba to encourage the establishment of industries in the southern region of the Kingdom. A suitable piece of state land will be chosen and provided with basic infrastructure, administration and services buildings for a number of modular industries. The estate will have room for 35 factories and will be implemented during the period 1987-1989.

The high level of industrial concentration - of both small and large scale enterprises is an index of weak inter-sectoral linkages within the national economy and the relative "over-development" of the mineral processing branches. Policies fostering the wider regional dispersion of industry can stimulate and strengthen inter-sectoral linkages. Such a policy can also play an important part in increasing employment opportunities in the South. The southern provinces of Karak and Ma'an have a share of roughly 10 per cent in East Bank population[2/] but as Table 2.12 shows, the share in small sector manufacturing employment is only about 5 per cent. Increasing inter-regional trade and investment links can be an important means for dealing with the problem of growing unemployment in Jordan.

1/ Government of Jordan, Five-Year Plan for Economic and Social Development, 1986-1990, 1986, p.561.

2/ Government of Jordan, Jordan Statistical Yearbook 1985, No. 36, 1986, p.1.

2.5 Trade in manufactures

Expanding manufacturing exports is also advocated as a means for securing employment growth in Jordan. Table 2.13 presents the commodity composition of Jordanian exports. The share of manufactures in total exports has risen from 46.6 per cent in 1979 to almost 60 per cent in 1984. This is a relatively high manufactured export share by regional standards. It is significantly higher than the value of the corresponding ratios for Egypt, Iraq, Syria, or any of the Gulf economies in 1985. It is broadly comparable to the average share of manufactures in total exports by the group of upper middle-income countries, but is significantly lower than the value of this ratio for countries such as India and Pakistan.

Table 2.13: Composition of exports by sector of origin, 1979-1984
(Percentage)

	1979	1980	1981	1982	1983	1984
Total exports	100.	100.	100.	100.	100.	100.
Agriculture	31.1	26.0	23.5	19.6	19.5	11.5
Mining quarry	22.3	28.9	23.2	22.8	25.7	29.3
Manufacturing	46.6	45.1	53.3	57.6	54.9	59.1
Food, beverages and tobacco	6.6	8.7	8.8	7.8	6.6	6.4
Textiles	4.7	4.3	5.6	5.1	2.8	7.1
Wood and wood products	4.4	3.5	2.9	2.1	1.6	2.9
Paper and paper products	1.3	1.3	1.8	1.3	1.1	1.2
Chemicals	8.4	9.0	9.6	11.9	21.4	26.1
Non-metallic minerals	2.2	2.8	3.4	3.6	3.4	3.6
Basic metal	1.8	1.3	1.1	1.0	0.4	0.4
Metal manufacturing	16.9	13.5	19.8	23.2	16.9	11.2
Other manufacturing	0.4	0.8	0.3	1.6	0.6	0.2

Source: United Nations, International Trade Statistics 1984, Vol. 1, New York, 1987, p.556.

Two product categories dominate manufactured exports from Jordan. They are chemicals and metal products. Together they accounted for 54.3 per cent of total manufactured export earnings in 1979 - this ratio had risen to 63.1 per cent by 1984. However, whereas the share of metal manufactures fell from 16.9 per cent to 11.2 per cent over this period, chemicals' share of Jordanian manufactured export earnings more than tripled - rising from 8.4 per cent in 1979 to 26.1 per cent in 1984. The share of mining also increased by 6 percentage points, indicating Jordan's strong dependence on the phosphate and potash industries to generate export revenues. The mineral and chemical[1/] branches increased their share in aggregate export receipts from 30.7 per cent in 1979 to 55.4 per cent in 1984. Despite the fall in the world price of phosphates the structure of Jordanian exports is unlikely to have changed significantly over 1985-1987.

1/ The chemical branch is mainly based on phosphate processing.

Food manufacturing[1/] and textiles are other major export earners. Their share in manufactured exports stood at 13.5 per cent in 1984 and although there was no clear growth trend, export earnings from these two sectors has often exceeded export revenue generated by metal product exports in recent years.

Table 2.14 presents results of a standard "sources of growth" decomposition exercise for Jordanian manufacturing value added classified at the three-digit level for the period 1974-1985. It is clear that the overall contribution of export expansion to manufacturing growth remains limited. It accounts for less than 12 per cent of growth of manufacturing value added. This is not significantly different from the contribution of exports to manufacturing growth for the period 1970-1975 estimated earlier by UNIDO. Expansion in domestic demand has been the main source of manufacturing during both 1970-1975 and 1974-1985, contributing around 60 per cent of growth during the latter period.

The leading export-oriented branches in the present sample are wood products, wearing apparel, industrial chemicals, plastic products, textiles and food manufactures in that order. The only engineering branch with a significant export contribution is the electrical machinery branch with an export share in total growth of about 21 per cent.[2/] The leading export branches identified by the earlier UNIDO study were broadly similar with exports accounting for over 45 per cent of the growth of the intermediate goods industries and for only 7 per cent of the growth of the engineering branches.[3/] The correponding figures for the 1974-1985 samples are 33.1 per cent and 3.2 per cent[4/]. The natural resource-based industries thus continue to be the most export-oriented branches and the export performance of the engineering industries seems to have deteriorated significantly in recent years.

As against this the export performance of the consumer goods branches seems to have improved. During 1970-1975 exports accounted for 10.9 per cent of the growth of these branches. During 1974-1985, this share rose to 23.4 per cent. Thus, whereas the engineering industries - with the possible exception of the electrical machinery industry have yet to develop significant export capacity the consumer goods industries are seen to make considerable headway in this direction during the last decade.

1/ It is unclear to what extent this category includes semi-processed products.

2/ This result is somewhat suspect because the statistical discrepancy involved in reclassification of SITC and ISIC classifications within this branch is relatively high.

3/ UNIDO, Industrial Development Profile of Jordan: Problems and Prospects, IOIS 159, (1980), p.62.

4/ In both calculations petroleum refineries are excluded.

Table 2.14: Sources of growth[a/] in Jordanian manufacturing value added, 1974-1985
(percentage)

	Domestic demand	External demand	Import Substitution	Statistical discrepancy[a/]
Total manufacturing	59.17	11.93	28.90	2.58
Food manufacturing	127.49	26.74	-54.23	4.94
Beverages	74.04	1.25	24.71	.68
Tobacco manufactures	98.98	3.11	-2.10	6.41
Textiles	41.33	37.37	21.30	12.12
Wearing apparel	73.40	79.93	-53.33	6.90
Leather & fur products	223.88	17.17	-141.59	7.08
Footwear	88.62	8.36	3.02	1.34
Wood & cork products	37.99	89.03	-27.02	.24
Furniture & fixtures	207.28	7.20	-114.47	.31
Paper & paper products	14.47	4.68	80.85	1.50
Printing & publishing	82.85	4.77	12.38	.22
Industrial chemicals	49.71	74.08	-23.79	.45
Petroleum refineries	146.52	-.18	-46.34	.40
Rubber products	367.49	-1.02	-266.47	3.21
Plastic products nec	50.72	44.73	4.55	2.78
Glass & glass products	56.63	1.97	41.40	.30
Other non-metallic minerals	78.46	11.27	10.26	21.90
Iron & steel	143.91	.99	-44.90	.07
Metal products excl. machinery	.00	.00	100.00	.00
Non-electrical machinery	-324.15	-12.25	436.40	-1.90
Electrical machinery	-5,228.38	21.40	5,306.98	-198.10
Transport equipment	268.69	3.90	-172.59	.00
Other manufactures	142.97	4.03	-46.99	.73

Source: UNIDO data base.

a/ For calculation methodology, see Annex D.

Another significant result that emerges from comparing Table 2.14 with earlier UNIDO findings is the significant recovery of import substitution. During 1970-1975, import substitution made a negative contribution to growth of consumer goods, intermediate and the engineering branches due to the marked increase in import demand generated within the Jordanian economy in response, first of all, to reconstruction after the June 1967 War and the 1970 civilian clashes and, secondly, in response to the massive inflow of oil money and remittances from Jordanians on the other.[1/] Both of these factors were of less significance during the 1960s. It was in the wake of the oil boom in

1/ UNIDO, Industrial Development Profile of Jordan: Problems and Prospects, ICIS 159 (1980), p.63.

the 1970s that Jordanian workers started to be recruited in large numbers (in the 1960s unemployment in Jordan had been at the rate of 7 to 8 per cent and by 1975 it was less than 2 per cent). Similarly, it was only after petro-funds became readily available (i.e., after the 1973 oil price hikes) that Arab public sector investment in Jordan became such a major factor. With a high propensity to import, the availability of foreign exchange and the undertaking of an ambitious development programme inevitably meant a reduction in the proportion of domestically produced goods to total supply in all groups of industries. The reduction of import substitution as a contribution to output growth in the manufacturing sector reflected not a sudden reduction in the "efficiency" of domestic prodution of these goods but rather the easier availability of foreign exchange resources. Although these resources remained relatively plentiful during the major part of the 1974-85 period, import substitution picked up substantially. It accounted for 29 per cent of aggreate MVA growth and reached extremely high levels in the engineering branches - electrical machinery, non-electrical machinery and basic metals. It was also the main source of growth in the glass and paper products branches. Further expansion of these branches is crucially constrained by the growth of domestic demand or exports. The fact that import substitution shares have been high indicates that the development of these branches has during the previous decade been domestic-demand oriented. Moreover, most consumer goods and intermediate products which showed rapid export growth during 1974-1985 enjoyed relatively high levels of effective protection, as Table 2.15 shows.

In 1979 production of chemicals and mineral-based products was low indicating that export growth in this area reflected price competitiveness. On the other hand, the effective protection rate on the engineering products was significantly negative - indicating that the slow export growth in these areas may partially be attributed to the bias against expansion of these industries. Eliminating negative protection can increase their price competitiveness in regional markets.

Table 2.16 shows the structure of manufacturing employment and the number of establishments operating in each sub-sector. Table 2.17 looks into the estimates of employment elasticities of leading export- and domestic-demand oriented industries. Although three export-oriented industries have employment elasticities significantly higher than the value of this ratio for the entire manufacturing sector, there are several domstic-demand oriented branches with higher employment elasticities. It is, thus, not possible to generalise about the employment impact of an export-oriented strategy. Increasing manufactured exports cannot be a sufficient policy response to the growth of unemployment in Jordan.

Expansion of Jordanian exports - both manufactured and primary - has been a consequence primarily of the "market composition" effect. The exports are heavily concentrated in the regional market. In the early 1980s this market weakened and the exports contracted sharply. Expanding exports must, therefore, be negotiated in Jordan's case. Jordan can hardly hope to compete with other relatively low-income regional suppliers, such as Egypt, Syria, Pakistan and India by forcing down the industrial wage rate - real wages would have to fall by between 60 to 70 per cent to make its products price competitive with those of Egypt and India.[1/] Moreover, a fall in real wages will have a negative impact on the prospects for most manufactured branches -

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1/ World Bank, Jordan: Issues of Employment and Labour Market Imbalances, Report No. 5117, Vol. 2, 1986, p.18.

Table 2.15: Average percentage rates of industrial protection, 1979 (excluding 15.1 per cent surcharge)

	Effective	Nominal
Bakery products	103.8	29.0
Paper and paper products	71.9	38.9
Wood, cork, furniture	70.8	29.9
Confectionary	67.2	30.1
Products of rubber and plastics	60.8	21.7
Wearing apparel	47.6	32.0
Other non-metallic mineral products	44.5	24.0
Leather and footwear	43.5	24.3
Textile manufacturing	39.2	22.6
Pottery and glass	38.4	18.9
Beverages	33.9	22.4
Grain mill products	15.8	8.7
Fabricated metal products	12.4	11.2
Basic metals	11.1	10.2
Other mining	6.2	7.4
Cement, lime, plaster	5.9	8.6
Industrial and other chemicals	4.2	9.0
Agriculture	1.3	5.7
Printing and publishing	-8.6	8.5
Electrical and transport equipment	-17.1	22.5
Machinery, excluding electrical	-26.5	2.5
Prepared animal feeds	-40.1	1.0
Petroleum refining	-59.7	126.4
Other food products	-217.6	10.6
Tobacco products	-326.6	88.0

Source: World Bank, Jordan: Export Strategy and Export Promotion in Manufacturing Industries, Report No. 4170 JO, Washington, 1983, p.66.

growth in domestic demand provided 60 per cent for the market for manufactured products during 1974-1985. Contraction of the domestic market will significantly restrict the growth of both industrial output and employment and is unlikely to generate high levels of exports because many regional competitors are already selling to Jordan's customers with wages that are a third of those prevailing in Jordan.

It is, therefore, not by increased price competitiveness but by the development of an effective "niche" strategy that Jordan can significantly enhance manufactured export earnings. Jordan has emphasized regional economic co-operation but the impact of this has so far remained limited to a penetration of Gulf markets. The products of Jordan's neighbours have not penetrated Jordan's own markets. Thus while in 1980 regional imports accounted for over 90 per cent of Jordan's exports, their share in Jordan's imports was significantly lower. Imports from all developing countries was only 37 per cent in 1985 (Annex Table A-20). Regional co-operation could pave the way for linking Jordanian exports, particularly with the country's major destinations within the region, leading to the replacement of imports from other origins. This is of vital importance to a small economy like Jordan so highly dependent on the regional market.

Manufactured exports need to be enhanced in order to redress problems stemming from increasing balance-of-payments deficits, the stagnation of worker remittances and drastic fall in the price of phosphates - which has fallen by 28 per cent during 1980-1986.[1/] Export growth should not be pursued at the expense of the domestic economy by suppressing real wages. This would have a significant negative impact on the growth of both manufacturing production and employment. But careful study of different branches and of markets for different products could explore the possibilities for effective regional co-operation leading to long-term export growth. The next chapter examines the problems and prospects of selected manufacturing branches in Jordan.

1/ This led to the closure of the Russaifa mine in mid-1985.

Table 2.16: Number of establishments and structure of manufacturing employment, 1985[a/]

Type of industry	Number of establishments	Employment
Food manufacturing	353	5,242
Beverages	18	985
Cigarettes and tobacco	4	754
Textiles	46	987
Clothing	128	1,836
Chemicals & chemical products	67	3,801
Petroleum refining	1	2,762
Plastics & plastic products	50	1,542
Building materials	259	4,832
Sub-total	926	22,741
Other	893	21,936
TOTAL	1,819	44,677

Source: Department of Statistics.

a/ Firms employing 5 persons or more.

Table 2.17: Employment elasticities of selected industries, 1974-1985[a/]

	1974-1985 Employment elasticity[a/]
Export-oriented	
Wood products	0.205
Apparel	0.621
Industrial chemicals	0.471
Plastic products	0.173
Food manufacturing	0.463
Domestic-demand-oriented	
Rubber products	0.360
Transport equipment	2.167
Leather	0.027
Furniture	0.294
Petroleum refineries	0.119
Total manufacturing	0.291

Source: UNIDO data base.

a/ Defined as $\frac{\Delta Ei/Ei}{\Delta Oi/Oi}$ where E = employment, where O = gross output

3. MANUFACTURING PERFORMANCE AND PROSPECTS: SELECTED INDUSTRIES

3.1 Engineering industry

The engineering industries may be identified as those branches contained in ISIC category 38 with five sub-classes.[1/] These encompass both consumer goods (automobiles, domestic appliances and consumer electronics) and capital goods.[2/] It is of course impossible to decompose ISIC three-digit categories in terms of capital goods and consumer durable production. Nevertheless, production technologies employed in both groups are broadly similar and the development of engineering branches - whether producing consumer durables or capital goods - has a significant potential to increase inter-sectoral linkages within the national economy[3/].

Figures on the production, employment and export shares of the engineering industries in Jordan are available at the three-digit level[4/]. Table 3.1 shows that the engineering industries accounted for roughly 8.6 per cent of MVA and 13.5 per cent of total manufacturing employment in 1985. As noted earlier, the relative share of metal-based industries in aggregate MVA and manufacturing output has declined over the period 1975-1985 - the figures in the first column of Table 3.1 give a false impression because of the inability to decompose the output of the iron and steel sector and identify fabricated metal products.

Table 3.1: Share of engineering industries in total manufacturing, 1975 and 1985 (percentages)

Indicator	1975[a/]	1985
Gross output	4.0	6.0
Value added	4.5	8.6
Employment	11.5	13.5
Wages and salaries	7.0	11.1

Source: UNIDO data base.

a/ This estimate suffers from the fact that UNIDO includes ISIC 381 (basic metals products) in ISIC 371 (iron and steel) in its 1975 calculations and decomposition is not possible. (Hence there is a strong downward base in the estimate for 1975.)

1/ Metal products (ISIC 381), non-electrical machinery (ISIC 382), electrical machinery (ISIC 383), transport equipment (ISIC 384), and professional and scientific equipment (ISIC 385).

2/ Capital goods are "commodities used for the production of commodities". They have been more formally defined as goods that cause the reproduction and expansion of the stock of social wealth and the flow of social income through their contribution to gross fixed capital formation (excluding sites, buildings and non-tangible assets). UNIDO, Capital Goods in Perspective, IS.420 (1983), p.2.

3/ This potential is of course greater in the case of capital goods than with consumer durables.

4/ Availability of figures at a 4 to 6 digit ISIC level would have allowed a decomposition into capital goods and consumer durables.

It is interesting to note from Table 3.1 that the share of the engineering industries is higher in terms of manufacturing employment and wages than it is in terms of value added and gross output. This would indicate the relatively high labour intensity of the engineering industries, particularly in comparison with the resource-based industries. Writing on the basis of mid-1970s, Mazur had noted that the metal producing industries had grown rapidly during 1967-1974, but he recognized that "they were mainly small scale and did not involve technologically complex processes nor much capital equipment".[1/] Relative growth rates have declined during 1975-1985, but some modernisation has taken place in that the gap between gross output and aggregate employment shares has narrowed significantly over this period.

Table 3.2 provides some details about the structure of the engineering industries. The data is taken from the Industrial Census for 1984. The large-scale metal products and non-electrical machinery branches are roughly of equal weight in terms of employment. The non-electrical machinery branch has more than 200 enterprises whereas the metal product sector has only 23. Wages in the latter are about 20 per cent higher than in the non- electrical machinery branch. Material costs are significantly lower in non-electrical machinery than in metal products (indicated by a higher value added to gross output ratio) and the former branch produced a small trading profit in 1984. The investment ratio is also substantially higher in the machinery sector than in metal products. The highest investment rate is registered by the electrical machinery branch which also had a relatively high value added to gross output ratio and a lower import content ratio (in terms of raw material used) than either the metal products or the non-electrical machinery branch. The share of the electrical machinery branch in total production of the engineering industries in 1985, however, are only about 2 per cent. The share of the transport equipment sector is even lower.

Almost all employees in enterprises with less than 5 workers identified by the Census within the engineering industry group were to be found in the non-electrical machinery branches. These enterprises account for 54 per cent of the total employment within this branch and for over a quarter of its gross output. Its share in aggregate branch value added is significantly lower. Trading profits for the small-scale non-electrical machinery sector were positive but significantly lower than those for large-scale enterprises within this branch.

Around 95 per cent of gross output and 92.5 per cent of the total value added of the engineering industries is produced by the basic metal products and non-electrical machinery branches. As noted in Section 2.4, the scope for import substitution in the metal products and machinery area remain high. It has been argued that the contribution of natural resource-based industries to growth in both output and employment is likely to diminish in the present Plan period. Hence, the engineering industries are likely to increase in importance. They usually employ a capital-saving but a relatively skill-intensive technology and are, therefore, particularly suitable in terms of Jordan's factor endowment. Their continued growth depends crucially upon the expansion of domestic demand - particularly the real wages of the urban poor and lower middle classes, the main consumers of their products. It also

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1/ Mazur, R.A., Economic Growth and Development in Jordan, Groom Helm London 1979, p.205.

Table 3.2: Structural characteristics of Jordanian engineering industries, 1984

	Basic Metal Products		Non-electric Machinery		Electrical Machinery		Transport Equipment		Energy electrical products	
	Large-scale	Small-scale	Large-scale	Small-scale	Large-scale	Small-scale	Large-scale	Small-scale	Large-scale	Small-scale
Employees (no)	1,012	18	1,173	1,425	287	8	80	--	3,757	--
Establishments	23	7	215	1,045	8	4	4	--	3	--
Average employees per establishement	44	2.6	15	1.4	36	2	20	--	1,252	--
Wages per employee (no)	163,541	1,036	1,359	1,059	1,281.90	795.00	1483.40	--	2,052.40	--
Production JD m	3,341	0.0082	24.42	7.191	0.71	0.001	0.23	--	40.20	--
Trade Profits JD	--	--	37,965	9,110	--	900	--	--	11,764,434	--
Transport of total raw material used	91.34	...	54.33	...	49.58	...	33.23	--	...	--
Value of assets at factor cost JD m	25.30	--	16.34	2.11	5.33		1.05	--	198.32	--
Investments fixed JD	331,417	--	556,683		290,207	--	19,940	--	2,578,762	--
Value added JD m	5.64	0.044	7.08	0.123	0.82	0.011	0.20	--	58.01	--

Source: Industrial Census of Jordan, 1984, Department of Statistics, December 1986, p.13-52.

depends upon the identification of export opportunities at the regional level. Major engineering products exported in 1985 included domestic electrical appliances, commercial road vehicles and electrical power machinery, textile and leather machinery, wire product bars and rods, unworked casting and universals, plates and sheets. The total value of engineering production exported in 1985 amounted to about $5 million and represented about 2 per cent of Jordan's earnings from manufactured exports. Whereas the scope for expanding engineering exports in the Middle East is widening because of an increased need for equipment maintenance many regional exporters with broadly similar skill advantages - Egypt, Syria, Pakistan and India - will compete vigorously for this market. Sustained export growth requires enhanced regional co-operation, integration of regional investment and marketing plans and avoidance of the type of cut-throat competition which can lose the Gulf maintenance market to contracting firms from outside the region. Strategies for the co-ordination of industrial and export strategies within the capital goods sector of the Arab countries have been discussed in a series of studies undertaken by UNIDO.

The current Five-Year Plan recognizes the need for the rapid development of small- and medium-scale enterprises within the engineering sector. It expects the private sector to play a leading role in the development of the engineering branch. The only major public sector investment is for the establishment of a foundary to be operated by the Arab Engineering Industries Company. Expenditure on this project represents 4.7 per cent of the total investment earmarked for industrial and mineral projects during 1986-1990.

This project aims at establishing a foundry to meet the needs of domestic and neighboring Arab markets. The project will form a nucleus for various engineering industries that would help establish an integrated engineering industrial base to provide the engineering industries with the necessary production inputs. The production capacity of this project is estimated at 16,700 tons annually. The project will be implemented in two interconnected stages. In the first stage, production capacity will be at about 10,000 tons, going up to 16,700 tons annually in the second stage through adding some equipment at little cost to increase the capacity of the production lines. Implementation is expected during the period 1986-1989. The cost of the first stage is estimated at JD19 million, of which JD289,000 was spent in 1985. The balance will be disbursed during the Plan period, as indicated in Table 3.3.

Table 3.3: Sources of finance for the development of Arab engineering industries' foundry, 1986-1990
(JD '000)

Source of finance	1986	1987	1988	1989	1990	Total
Self-financing	3,211	3,500	1,500	1,000	-	9,211
Loans	3,500	2,200	2,000	2,000	-	9,700
Total	6,711	5,700	3,500	3,000	-	18,911

Source: Arab Engineering Industries Company.

3.2 Small-scale industry

Jordan's current Five-Year Plan lays stress on the need to promote small- and medium-scale manufacturing enterprises in the country. The share of total industrial investment allocation to the small- and medium-scale sector over the period 1986-1990 stands at 22 per cent - significantly higher than in previous plans. The government expects the private sector to play a leading role in the development of the small-scale manufacturing sector.

Table 3.4 attempts to measure the relative weight of the small-scale sector within manufacturing. It shows that although over three-fourths of all manufacturing enterprises employ less than 5 persons each the share of such firms in manufacturing employment is only 26 per cent. They contribute less than 3 per cent of total manufacturing production and generate 2 per cent of the sector value added. They are capital starved. Less than 1 per cent of fixed investment in the manufacturing sector was undertaken by small-scale enterprises in 1984 and the value of their fixed assets also represent less than one per cent of the total fixed assets of the manufacturing sector.

Table 3.4: Share of the small-scale sector in total manufacturing activities, 1984

	Unit	Small-scale sector	TOTAL	Per cent of total manufacturing activities[a/]
No. of employees	No.	14,978	56,851	26.34
No. of establishments	No.	6,487	8,533	26.02
Value of production	JD	26,035,938	903,143,317	2.88
Total revenue	JD	41,491,403	1,000,561,370	4.14
Value of fixed assets[b/]	JD	10,025,905	1,108,527,264	0.91
Investment[c/]	JD	495,674	53,288,874	0.93
Value added	JD	21,326,145	290,164,252	2.34
Paid-up capital	JD	50,150	24,706,606	0.06

Source: Government of Jordan, Industrial Census 1984, pp.25-75.

a/ Includes establishments employing 5 persons or less.
b/ At fixed costs
c/ For example, purchase of fixed assets in 1984.

The data presented in Table 3.4 may, however, seriously understate the relative importance of the small-scale sector in manufacturing. This is because some enterprises with more than 5 employees probably share many structural characteristics of firms within this sub-sector but have been excluded from it mainly for statistical classification reasons. Even with this provision in mind,[1/] the evidence presented in Table 3.4 reflects significant underdevelopment of the small-scale sector. The share of

1/ In most developing countries small-scale industry is classified as those with the number of employees ranging between 10-50. UNIDO, Policies and Strategies for Small-scale Industry Development, IS.517, 1980, p.3.

enterprises with less than 5 employees was 29 per cent in Guatemala, 20 per cent in Honduras, 18 per cent in Bangladesh and 14 per cent in Belgium in the early 1980s. In India the share of enterprises in MVA with less than 10 of employees was 37 percent in 1980 and 38 per cent in 1970.[1/]

Moreover, there has been a significant decline in the small scale sector. The number of manufacturing establishments with less than 5 employees stood at 7,352 in 19. (accounting for 90 per cent of the total number of manufacturing establishment).[2/] The number of small-scale units thus fell by more than 10 per cent during 1977-1984. The share of the small scale sector in manufacturing employment fell by 15 per cent during this period.

As Table 3.5 shows, small-scale establishments are concentrated in the non-electrical machinery, furniture and wood products manufacturing branches. Together these branches account for 92.6 per cent of the employment and 94.8 per cent of the gross output of the small-scale sector. The largest single branch is the non-electrical machinery branch where small-scale enterprises produce a significant proportion of sectoral output. They are mainly engaged in the production of machine tools and simple metal products and employ a highly labour-intensive technology - the share of the machinery sector in the gross output of small-scale manufacturing is significantly higher than its share of value added. Most establishments within the sector are involved in repair and maintenance work which can enhance Jordan's capacity to play an important role in providing maintenance services - particularly in the construction industry - to her West Asian neighbours. Jordan will have to face stiff competition from other regional economies such an Egypt, Pakistan and Syria which possesses relatively advanced construction and maintenance industries.

Small-scale industries have so far not exhibited high export propensities. They are domestic demand oriented and have strong linkages with industries such as non-metallic minerals and textiles with high import contents. A UNIDO study conducted in 1984 of small-scale industries in the countries belonging to the Organization of the Islamic Conference (OIC) found that despite the fast modernization of the medium- and large-scale sector managed by the traditional Jordanian merchant class the small-scale and handicraft industries have remained virtually untouched, although some steps have been taken to foster their progress as well.

1/ UNIDO, Small and Medium Enterprises: Some Basic Development Issues, by Nanjundan S., PC.137, 1986, p.7.

2/ UNIDO, Industrial Development Profile of Jordan: Problems and Prospects, ICIS/159, 1986, p.29.

Table 3.5: Distribution of small-scale enterprises by branch of manufacturing, 1984

	Employees		No. of establishments		Production	
	Total	per cent	Total	per cent	Total	per cent
Mining	96	1.08	28	0.72	420.9	1.60
Food manufacturing	1,047	11.86	412	10.68	4,376.0	16.88
Textiles	156	1.76	76	1.84	385.7	1.48
Clothing	972	11.07	611	15.84	509.0	1.95
Leather	62	0.71	25	0.54	110.7	0.43
Footwear	185	2.19	25	0.64	583.1	2.23
Furniture/wood	2,062	23.36	967	25.08	5,723.9	21.98
Printing	123	1.39	43	1.11	333.9	1.20
Chemicals	15	0.16	5	0.12	143.3	0.54
Rubber	10	0.11	4	0.12	12.2	0.04
Plastic	10	0.11	4	0.12	52.8	0.20
Non-metallics	1,614	18.28	600	15.56	6,081.8	
Basic metal	18	0.20	7	0.15	81.8	0.31
Non-electrical machinery	2,426	27.49	1,045	27.10	7,198.7	22.69
Elec. machinery	8	0.09	4	0.12	10.8	0.04
Miscellaneous	16	0.17	7	0.15	9.6	0.04

Source: Department of Statistics, Industrial Census 1984.

The small-scale sector is built around the traditional Arab bazaar and the master craftsman who maintains his position within the market by participation in an informal craftsman's guild with well established traditions and behavioural patterns. Use of mechanics is gaining popularity as is the use of electricity as source of energy. Familiarity with production processes is high. Eighty-five per cent of small-scale producers responding to an Islamic Development Bank Survey in the late 1970s[1/] stated that they had no difficulty in selecting appropriate machinery.

The significance of the small-scale sector lies in the fact that it constitutes the largest pool of entrepreneurial ability within the Jordanian economy. The search for industrial efficiency and economies of scale must therefore not be at the expense of indigenous entrepreneurial ability. A conscious attempt needs to be made to avoid forcing the informal sector entrepreneur into becoming a semi-skilled labourer, an immigrant to the Gulf, or an unemployed resident of the city slums.

1/ UNIDO, Capital Goods in Perspective, IS.420 (1983), op.cit, pp.86-87.

3.3. Packaging industry

In 1982 Jordan requested UNIDO to carry out a detailed survey of the packaging industry with a view to identifying its development potential. The major findings of the Report[1/] are outlined below.

It is not possible to estimate the size of the packaging branch in MVA or employment since Jordanian industrial statistics are presented at a three-digit ISIC level and the packaging industry is part of several ISIC 3-digit level branches (paper, plastics, non-metallic mineral products and metal products).

Currently there is only one paper mill and one factory making corrugated boxes in Jordan. The maximum capacity of the mill is 10,000 tons per year and present output is in the order of 6,000 tons. The company is independent and has no know-how agreements. The government is a major shareholder. The capacity for corrugated board production is said to be 14,000 tons per year. In 1982, 4,000 tons went to the local market and 5,000 tons to export destinations, mostly to Iraq. Boxes with glued side seams are produced at 10,000 boxes per hour. Two colour flexo printing is carried out, all inks being imported. Imported starch-based adhesives are used for the corrugator and local PVA adhesives for side seam gluing. The biggest expansion potential is seen in the fruit and vegetable market. The company has relied entirely on craft skills in the past to monitor raw materials or quality of the box production.

The plastic converter activity is highly developed in Jordan. At least four factories specialize in polystyrene pots for yoghurt, fruit juice and ice-cream. They are well equiped with modern, high output machines and produce first-class products. The polystyrene is imported as resin from many countries, including France, Holland, Belgium, Greece and Italy and is then first formed into rolls of heavy gauge film. These are then thermoformed on the converter's equipment or supplied to the user for his conversion into pots. Technical help is readily available from suppliers. Waste is shredded and fed back into the process. Production is in excess of 60 million units per year.

About 25 per cent of the output is exported to neighbouring Arab States. The companies have some space capacity and are planning expansions. The number of factories involved in blowing plastic containers is very large considering the size of the market. Estimates varied between 40 and 65. Not only are they converters, but many of the users blowing their own containers. From discussions with the producers, it would appear that capacity far exceeds

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2/ UNIDO, Jordan: A Survey of the Packaging Industry, DP.ID/SER 418, 1983. A list of industry-specific recommendations contained in the Report is furnished in Annex B.

demand. Most of the resin is still brought from European countries, but some polyethylene from the Gulf States has been used and more is expected over the coming years. None of the factories have any technical facilities for testing of physical properties or for checking the behaviour of the filled pack.

The appearance and function standards of Jordanian plastic container products packed in these containers is rather poor, despite the fact that products themselves are good. An important reason why bad containers are often made is that moulds are costly and if the number of containers produced from a given mould is not expected to be large over a reasonably short time after its acquisition, the whole cost of the mould is spread over a small number of containers. Worn out moulds may be bought to overcome this high initial cost problem. Moulds are almost entirely bought from European countries at the present time, but there are plans to develop the very real expertise required. It is suggested that such an enterprise would have much greater chance of success if the range of moulds was much reduced at the same time so that each one produced would be fully utilized. It would be a mammoth task to introduce a range of plastic containers suitable for the more commonly sold products such as shampoos, detergents, cleaning liquids, etc. Product identity could be established through colour, and label or print design rather than through shape, as is so often the case at the present time.

It has been proposed that since the ultimate aim is to upgrade the performance of the containers in use, the only fair way is to eliminate those companies whose products damage the image of the local products, so as to expedite the process of acceptance. The standards required must be clearly set forth and the methods of test to be used also clearly defined and readily available. But it would not be an acceptable system if the equipment necessary for testing quality requirements to which minimum acceptable values have been set were available only to a few. Companies wishing to check on the performance of its containers should be able to do so, especially if the performance of those containers has been questioned. Since few companies can afford the test equipment or the expertise that is necessary to carry out tests with confidence, they must have access to such equipment and expertise and be able to carry out any tests as they think necessary. This cannot be achieved under the formal system of sending in their samples to a central testing laboratory and waiting for a report on the findings. There is a need to try new approaches to the problem of how to introduce testing into industry in developing countries.

Rich deposits of very good quality sand have been located and plans are well under way for the construction of a glass container factory. When it comes on stream, production could cater for the needs of several local manufacturing firms.

The growing pharmaceutical industry uses glass bottles, mostly brought from the U.K. and Italy. The standard range of designs enables them to buy a wide variety of sizes. The needs of the pharmaceutical industry are rather specialized and in the normal course of events one could expect the new glass factory to produce to their needs.

In Jordan there are specialized manufacturers producing metal containers and there are food manufacturers who make their own cans. None have know-how agreements with companies abroad.

Tinplate is brought in from Japan, the U.K. and France, and a small quantity from Gajair, a source within the Arab Region. No tin-free steel is used and in general cans are made from stock metal sheets sizes which can be rather wasteful. The usage for two of the biggest converters is in the order of 4,000 tons of tinplate per year. Several companies import ready printed sheets; only one of the converters has printing facilities. All inks are imported from the U.K. and Denmark. No lacquering is carried out in Jordan; where this is required, the sheets are imported ready-coated.

Most of the cans from the specialist can-makers go to the paint industry in sizes of one, one-half, one-quarter, one-eighth and one-sixteenth US gallons. They are the traditional lever lid type. One-can maker also makes crown cans and aerosol cans, many of these for the export market.

Of the two food manufacturers making cans, one has been in production for some years and the other has a new line just coming on stream. The established company concentrates on tomatoe paste but also canned vegetables as they become available. The other company makes just one size of can and at the moment limits production to five types of vegetables.

The use of cans for beer is increasing rapidly; at present it is about one-half million cans per month. Two and three-piece cans are used, made from tinplate and aluminium. The most striking point about food canning in Jordan is the apparent absence of can technology. Consideration may be given to limiting food can production to one specialized company that has a know-how agreement with an experienced can making company, perhaps in the form of a joint venture. In this way the can-maker can become a centre of expertise, guiding the can-users in correct procedures.

4. INDUSTRIAL DEVELOPMENT POLICIES AND INSTRUMENTS

4.1 Objectives and strategies

The First and Second-Five Year Plan stressed the role of the industrial sector as a key development pace setter, putting heavy emphasis on the rapid development of the natural resource-based industries. The capital requirements for pursuing such a development strategy were large and foreign - particularly Arab - financial assistance played a key role in the implementation of the industrial development strategy of the 1970s and early 1980s. It was hoped that the natural resource-based industries would significantly expand export earnings and would also augment agricultural production.

Since the early 1980s there has been a downturn in regional demand. Moreover, the world price of phosphates - and of products based on it has remained exceptionally low. The performance of the agricultural sector fell short of expectations and land fragmentation and slow growth of farm income prevented a significant expansion of domestic use of fertilizers.

The present Plan (1986-1990) lays particular emphasis on agricultural development and on increasing the sector's productivity. It does not, however, specify targets for expansion in ferilize- use.[1/] The Plan, however, continues to emphasize the development of phosphate potash and chemical-based projects. The share of such projects in total industrial investment allocated during 1986-1990 is 56.3 per cent.[2/] It is not clear, however, whether the new and on-going projects will be export or domestic market oriented.

It has been argued that "the major industries (have) already expanded to close existing capacity and industrial growth during the 1986-1990 Plan have had to rely increasingly on the development of small- and medium-scale industries.[3/]

The authors of the Third Plan do not, however, share this view: they have allocated over 50 per cent of industrial investment to resource-based industries and placed strong emphasis on expanding existing capacity in the chemical phosphate and potash related branches.[4/]

The Plan recognises the need to lower the capital intensity of the manufacturing sector by encouraging the growth of engineering and food manufacturing industries. The Plan seeks to create 11,000 new jobs within the manufacturing sector bringing the total number of people employed in manufacturing to 63,400 by 1990. The manufacturing sector's share of the total number of new jobs created during the Plan period is expected to be 11.3 per cent. This is likely to marginally raise manufacturing share of total employment - which in 1983 was estimated at about 10 per cent - and may also lead to a modest fall in aggregate sectoral capital intensity.

1/ Government of Jordan, Five-Year Plan for Economic and Social Development, 1986-1990, Amman 1986, pp.532-553.

2/ See Annex C.

3/ World Bank, Jordan: Issues of Employment and Labour Market Imbalances, Report No. 5117-JO, Vol. 2, 1986, p.19

4/ Government of Jordan, Five-Year Plan for Economic and Social Development, 1986-1990, pp.88-89.

There is an increasing concern with the need for rapidly expanding employment opportunities as the flow of migrants to the Gulf is halted - perhaps even reversed. Jordanians working abroad would constitute 40 per cent of total manpower, but the annual outflow of Jordanians has fallen from 16,000 in 1979 to less than 5,000 in 1985. The reduction of this outflow as well as the continued presence of non-Jordanian Arab - in the main Egyptian - workers in the country may lead to a significant deceleration in the real wage level within the manufacturing sector. This may stimulate the development of labour - particularly skilled labour - intensive industry. But falling real wages are unlikely to significantly augment Jordan's international competitiveness. The unit costs in manufacturing are considerably lower than that of major engineering exporters such as the Republic of Korea and Singapore and the average yearly earnings in manufacturing are three times higher than in Egypt and four times higher than in India in the early 1980s.[1/] Moreover, falling real wages will significantly constrain the domestic demand for labour intensive industries. The promotion of these industries will require efficient import substitution and rising domestic purchasing power.

The government seeks to stimulate the growth of the employment-intensive branches by increasing inter-industrial integration. This will involve an expansion of subcontracting within the sector and provide increased scope for medium-sized private manufacturing enterprises. As noted earlier the share of private sector projects has been significantly increased in the industrial investment allocations contained in the 1986-1990 Plan. The bulk of investment within the sector is to be undertaken by mixed enterprises in which both public and private institutions have equity holdings.[2/] A structural shift may occur in the "mixed enterprise sector" if funds borrowed from international banks have to be substituted for declining bilateral assistance from Arab countries on a significant scale. Such a shift will be reflected in the policies of the enterprises and may lead to a revision of government attitudes towards them. Jordan has, however, remained committed to the support of a liberal economic policy regime and an encouragement of foreign investment since the late 1940s. It has adopted a series of measures to achieve this end. Some of these measures are described in the following section.

4.2 Instruments of industrial policy

A. Foreign investment regulations and incentives

The Government of Jordan actively encourages foreign investments in productive, export-oriented import-substituting industries. Several laws to encourage foreign investments have been drawn up in recent years, and a number of free zones and industrial estates are being established to act as catalysts, for domestic, regional and international investments. The government's investment incentive policies are under review, and will be strengthened in 1988, in line with the current emphasis on establishing medium-sized export industries throughout the provincial regions of the country.

1/ ILO, Yearbook of Labour Statistics 1984, Geneva 1985, Table 12.

2/ It is, however, difficult to quantify the relative importance of public and private investment in specific branches or projects because national sources do not provide such statistics.

The licensing body for foreign investment is the Ministry of Industry and Trade. Other institutions which promote new industries with international equity shareholdings are the Industrial Development Bank, the Social Security Fund and the Pension Fund.

According to the Control of Foreign Activities regulations of 1978 and the Encouragement of Investment Law of 1984, foreign partners can own a maximum of 49 per cent of the share capital of a Jordanian company, except in industry, tourism and tourist-related services, where foreign ownership reaches 100 per cent in certain cases.

The Investment Law 1984 is the principal legislation governing foreign invetment incentives. It provides for exemptions from customs duties, import fees and income tax for approved projects in the fields of industry, tourism, housing or land development. The provision of this Law includes:

1) Exemption of fixed assets and spare parts from custom duties, import fees and all other additional charges applicable to the initial establishment or subsequent expansion of a project.

2) Exemption of net profits from income tax and social welfare tax for six years or for nine years if the project is a public share-holding company, or is located outside the Amman governorate.

3) If the project is expanded after the first six to nine years of tax exemption, further tax exemptions are granted on the equivalent of 25 per cent of net profits after expansion, for a period of three years or for four years for public shareholding companies or those located outside the Amman governorate.

4) Exemption from building and land taxes for five years or for seven years in the case of public shareholding companies, or projects outside the Amman governorate.

5) The council of Ministers may allocate free land to an approved economic project outside the Amman governorate.

6) Guarantee of transfer and repatriation of foreign capital, profits and interest of approved economic projects, and of 70 per cent of salaries of non-Jordanian employees with 100 per cent repatriation in special cases.

Under the 1984 Encouragement of Investment Law the country was divided into three regions for the purpose of eligibility for incentives. Investmetns in the Amman and Aqaba areas will receive the least incentive while those in the South West Desert will receive the most. The Salt, Irbid and Madba regions are classified as intermediate. Tax holidays are available, ranging from 7 years for the lowest tax region to 12 years for the highest. Since 1986 Arab investors have been treated more favourably than other foreign investors, being treated largely as Jordanians for foreign investment purposes. Joint ventures are sought which will help establish an industrial base, promote exports and transfer of advanced technology.

B. Free Zones

The Government of Jordan has established the Free Zones Corporation to set up and operate a series of industrial Free Zones in different parts of the country, mainly to accommodate export-manufacturing and assembly plants.

The Free Zones Corporation Law No.39 of 1976, amended by Law No.32 of 1978, makes the Free Zones Corporation an autonomous body under the Ministry of Finance, empowered to establish and operate Free Zones, warehouses, stores and other structures in order to promote productive national industries, trade and transit activity.

Projects in Free Zones enjoy the following privileges:

- Exemption of profits from income tax and social services tax for 12 years, from one year after production begins.
- Exemption of salaries and allowances of non-Jordanian staff from income tax and social service tax.
- Exemption from custom duties, import fees and all other additional fees and taxes for goods imported into or exported from Free Zones to any export market outside Jordan.
- Exemption of lands, buildings and other properties in Free Zones from buliding license fees and buildings and land taxes.
- Guarantee of transfer and repatriation of capital and profits of Free Zones projects in accordance with Central Bank Regulations.

The most important Free Zone is the one being established at the southern port-resort of Aqaba which includes refrigerated warehouses for meat and produce. A second major Free Zone is being set-up near Zarqa and a third jointly with Syria at Ramtha, along the Jordan-Syrian border to the north.

Another major free zone being established is at Zerka situated some 35 kilometers north east of the capital, Amman, the Zerka Free Zone lies at the crossroads of several international highways.

The area as allocated by the Jordan Government is 5,500,000 sq.m. planned for development in successive phases, of which phase I and phase II have been completed.

C. Industrial Estates

Small-scale industrial estates catering to local enterprise exist in several cities. The focus of industrial planning in Jordan today is the large industrial estate being established at Sahab, about 25 kilometers south of Amman. The Industrial Development Bank is responsible for studies and implementation of the Sahab project, which will include a small Free Zone area as well. The estate will cover 254 hectares of land and ultimately accommodate 700 industrial units of small and medium size. The site will include full infrastructure facilities (roads, water, electricity, sewage, transport) and allied services such as warehouses, workshops, banks, schools, recreation units, clinics, restaurants and day-care centres.

An Industrial Estates Corporation, with a capital of JD6 million (US $20 million) has been set up to oversee the establishment and operation of other industrial estates in Jordan.

Major projects of the Industrial Estates Corporation during 1986-1990 include:

- Irbid Industrial Estate

  A 400-dunum lot has been acquired for the construction of the Irbid Industrial Estate near the permanent site of Yarmouk University. An area of 130 dunums has been allocated to the Arab Engineering Industries Company. Project designs, studies and tender documents have been completed.

  The Total cost of the project is estimated at JD5 million, of which JD330,000 was spent on studies, engineering designs and land in 1985.

- Amman Industrial Estates/Sahab (2nd Stage)

  The Industrial Estates Corporation completed the first stage of the Amman Estate in May 1984. About 60 per cent of the land earmarked for industries have already been rented as well as 60 per cent of the industrial and services buildings. The remainder is expected to be occupied before the end of 1987. To guarantee the availability of industrial lots and industrial-type buildings in the estate, designs and engineering studies have been prepared to start the implementation of the second stage on an area of 1,070 dunums. Land leveling will start in 1986. The infrastructure network and industrial buildings will be implemented in steps depending on demand.

  The total cost of the project is estimated at JD7 million, of which JD1.15 million had been spent by the end of 1985.

- Aqaba Industrial Estate

  The Corporation is planning to construct an industrial estate in Aqaba to encourage the establishment of industries in the southern region of the Kingdom. A suitable piece of state land will be chosen and provided with basic infrastructure and administration and services buildings for a number of modular industries. The estate will have room for 35 factories and will be implemented during the period 1987-1989.

- Salt Industrial Estate

  The Corporation is planning to construct an industrial estate in the Salt area to encourage the establishment of light and medium industries in the Balqa Governorate. During the first half of 1986, a suitable location will be chosen. Engineering designs and tender documents will then be prepared. Implementaion is expected to start at the beginning of 1988. The estate will house 60 factories.

D. Licensing Procedures

The licensing and control regulations of industry defines an industrial establishment as any company that uses moving mechanical power for making raw materials into finished or semi-finished products, or processing or assembling semi-finished products into finished products, or dressing, mixing, assembling, breaking up, adapting for sale, wrapping or packing any materials or products. A license from the Ministry of Industry and Trade is required before any industry can be established or expanded. Work on setting up or expanding an industry must start within six months of being licensed.

The Ministry of Industry and Trade can refuse a license if the proposed industry is deemed inappropriate for Jordan or does not contribute to the economic development of the country. Industries can apply for exemptions, protection or other incentives specified in the Encouragement of Investments Law and Free Zones Law.

The organization and conduct of business in Jordan is governed primarily by the Companies Law No. 12 of 1964 and its amendments. This allows the establishment of four basic types of companies:

- Ordinary Unlimited Partnership: a firm whose partners are all jointly and without limit liable for the obligations of the partnership.

- Ordinary Limited Partnership: a firm composed of two categories of partners-one or more partners whose liability is limited to the amount of his or her share of the capital, and one or more partners jointly and without limit liable for all the obligations of the partnership's capital.

- Public Shareholding Limited Company of JD60,000 or more, with seven or more shareholders managed by a board of five to eleven directors under the control of the shareholders' general meeting. The company issues shares with a fixed nominal value with shareholders' liability to that amount.

- Private Shareholding Limited Company: a company with a share capital of JD10,000 or more, with two or more shareholders, managed by a committee of 2-5 managers under the control of the shareholders' general meeting. The company issues shares with a fixed nominal value.

Any industrial enterprise with a capital of JD500,000 or more can only operate as a public shareholding company.

Any foreign company wishing to operate in Jordan (except those working under contract to the government) must register with the Ministry of Industry and Trade's Registrar of Companies. An application to register must include: the company's trading name; names, addresses, occupations and nationalities of all partners; addresses of the principal office and all branches; the share capital of the company and the shares of each partners; the purpose of the company; names of partners authorized to manage the company and sign on its behalf; and the term, if any, for which the company is formed.

Business Licenses Law No.2 of 1979 requires every partnership, company or sole proprietorship to obtain an annual license from the municipality concerned against the payment of fees.

Special registration

Concessionary companies, insurance firms, banks and industrial companies with a capital of JD500,000 ($1,65 million) or more can only be registered as public shareholding companies, provided the promoters have between 10 and 50 per cent of the total capital, the balance being offered for public subscription.

In cases where a company is established to exploit a concessionary project or is an industrial company with more than JD500,000 capital, including foreign shareholder of partners holding less than half the capital, the promoters may, with the approval of the Council of Ministers, subscribe to all the shares of the company.

Most foreign companies operate in Jordan by appointing a local agent or representative to handle distribution and sales of their products. Appointment and registration of agents has to be done according to the Commercial Agents and Middlemen Law No. 20 of 1974, amended in 1979. Most large Jordanian importers act as direct agents or sole represntatives, and deal in a wide range of products. Jordanians acting as commercial agents must be at least 20 years of age or older, permanent residents of the country, and registered with the Ministry of Industry and Trade.

The legal paperwork required to appoint a local agent is minimal, and requires basically that a written and signed appointment be made by the foreign company. Any arrangement worked out between the foreign company and its chosen Jordanian representative is strictly private. The only requirement binding on the foreign company is that it does not terminate its agreement with the agent during the agreed duration of the association without legitimate reasons. Changing agents arbitrarily is frowned upon in the normal course of business. It is imperative that a foreign company choose its Jordanian agent carefully, with an eye to an association of many years. In case of disputes between companies and their local agents settlement is made through existing arbitration laws or through civil courts.

Contract bidding

Most governments and armed force requirements are normally put out to international tender. Local representation is usually required, and many short-dated tenders are virtually impossible to bid for without on-the-spot representation. Many smaller tenders are published in the local press in Arabic only, while bigger contracts are tendered in the local and international press in English.

Trademarks and patents

Manufacturers and traders are advised to patent their inventions and register their trademarks in Jordan. Such applications can be made through patent and trademark agents in the country. Patents are granted for a term of 16 years subject to the payment of renewal fees every four years. Trademark registration lasts for seven years, and can be renewed for periods of 14 years. Fees are nominal.

Regional offices

The Registration of Foreign Companies Law No. 46 of 1975, as amended by Law No.17 of 1977, provides exemptions and incentives for international companies wishing to establis' a regional office in Jordan to do business throughout the Middle East. Benefits offered to offices include: exemption from corporate income taxes on profits earned outside Jordan; exemption from income and social services taxes for non-Jordanian personnel and all equipment and furniture for the office; duty-free importation of one private car for each non-Jordanian employee, exemption from registering with and paying fees to the Chambers of Commerce and registering with and paying fees to the Chambers of Commerce and Industry and professional associations, and exemptions from obtaining business licenses and paying relevant fees applicable to companies doing business in Jordan, including municipal fees. Regional offices are allowed to open non-resident bank accounts in dinars or any convertible foreign currency.

The actual registration formalities for a regional office are quite simple. A company representative must personally bring a letter signed by a senior company official stating that he is the presentative of their company, as well as a power of attorney authorizing him to act on the company's behalf. This letter is to be submitted to the Registrar of Companies at the Ministry of Industry and Trade along with a completed application form. The application has to be acted upon by the Ministry of Industry and Trade wtihin one week of submission, and approval is follwed by the issuing of a certificate of registration for a regional office. Regional offices al wishing to carry out business in Jordan can do so by simply appointing a loc agent or sales representative. Approximately 200 international companies have opened regional offices in Jordan since 1975.

The n Chamber of Industry, in co-operation with the Ministry of Industry and Trade, is currently preparing a draft Industry Law which aims at organizing, encouraging, aiding and protecting the industrial sector. The Chamber has undertaken studies to update the law, governing its own activities, with the objective of expanding its representation to include all industrialists, thus broadening its representational base and extending the range of its services to all industrial regions in the country. The Chamber has prepared a classification system and has set up sectoral consulting committtees comprising 14 sectors. Representatives have been elected and the committees are expected to provide expanded services to all branches of the industrial sector. Computer services will also be introduced into the Chamber's activities, contributing to a further enhancement of efficiency in services provided to the sector.

E. Trade Policy

The Jordanian Government pursues a liberal trade policy in accordance with its development strategy.

The right to import is restricted to resident Jordanians possessing a trade licence, to registered Jordanian companies (with at least 51 per cent local ownership), to organizations importing goods for projects authorized under the encouragement of Investment Law, and to foreign contractors or foreign companies registered in Jordan in accordance with the companies Law, who may (subject to official approval) import whatever goods are required to fullfil government contracts. Import licences are required for most

commercial imports exceeding JD100 in value, other than government imports, goods imported under the terms of the Arab Common Market and other trade agreements, goods in transit, sheep and goats, and newspapers, magazines, books and other printed matter. Import licences are generally valid for one year and may be renewed once only for a maximum of four months.

A number of items are prohibited from being imported, including passenger cars operating on fuels other than petrol, certain mobile trailers, gambling and lottery machines, cigarettes, and all goods from Israel. Other imports are restricted and thus require approval from the relevant authorities. These include wireless receiving and transmitting sets, firearms, medicines, most agricultural and veterinary supplies, some machinery and industrial equipment, cement, certain petroleum products, paper and cardboard, and various foodstuffs. The government has also restricted imports of goods in competition with those produced by local industry, and raised tariffs on others. Such restrictions are expected to multiply as domestic industry develops.

The Jordanian tariff system is based upon the Customs Co-operation Council Nomenclature and duties are generally assessed on the cif value, although some duties are specific. Rates of duty range up to 100 per cent; duties on imports which are likely to compete with locally produced goods tend to be high. Goods exempt from duty include imports by government organizations, and certain raw materials and machinery. A surcharge of 15 per cent of the duty-paid value is levied on most imports to finance social welfare and the development of public facilities.

Nominal rates of protection have been low in Jordan by developing country standards. It was argued in the early 1980s that there was an anti-export bias in the protection structure. This has been significantly reduced by tariff rationalization undertaken during the second and third plan periods. The import regime has also been extremely liberalized.

All the usual methods of payment may be used for most imports, although a confirmed letter of credit is advisable. Imports that require an import license also need an exchange permit which is granted automatically when an import licence has been obtained; the importer holding an exchange permit has the option of opening a letter of credit or paying against documents. The use of suppliers' credit is subject to prior approval by the Central Bank, which is normally given only for essential imports. The Central Bank of Jordan has ruled that letters of credit must include a condition that goods consigned for shipment by air should be carried by Royal Jordanian Airlines.

F. Taxation

Taxes, particularly direct taxes, have risen in recent years. The tax/GNP ratio currently stands at about 12 per cent.

The income tax law was amended in 1984 when rates were adjusted slightly and exemptions broadened. The main alteration was the unification of the tax rate of individuals and companies, with the same graduated rate scale applying to both with ceilings varying according to the type of business and legal form. The ceiling stops at 45 per cent for individuals; 35 per cent for industrial, health and educational public shareholding companies and 38 per cent for those in the private sector; 40 per cent for non-resident ordinary companies and other private shareholding companies; 50 per cent for the

financial sector; and 55 per cent for private financial companies. All normal costs may be deducted in arriving at profits, with set rates for the depreciation of various classes of capital equipment. Foreign companies are permitted a deduction for a proportion of head office expenses up to 5 per cent of their taxable income within Jordan.

In the amended Income Tax Law, tax ceilings on industrial income were introduced to provide more tax relief. Also, a new law was enacted to regulate accounts auditing and upgrading the profession's ability to serve the various economic sectors, including industry. A new Company Law is currently under preparation.

The government intends to enact legislation during the current Plan period (1986-90) to exempt imperfect raw and intermediate material and spare parts - not locally available - from customs duties. Other measures increasing the liberal orientation of the structure of taxation are also being contemplated.

G. Financial Policies

The Central Bank of Jordan is the nerve centre of fiduciary issue regulating 18 conventional commercial banks (registered in 1985) with over 175 branches concentrated in the urban centres. There are also three Islamic banking institutions, five investment banks, two real estate savings and loans associations and six specialized credit corporations in Jordan. The Central Bank controls the banking sector. Banks have proved amenable to some innovations, particularly portfolio management and equity financing, and JD132 million worth of syndicated loans and JD85 million bond issues have been made since 1980. There are signs of consolidation of the financial sector through mergers. The collapse of one of the oldest moneychangers in 1986 rocked the fiancial sector, affecting the confidence in the soundness of its institutions. The Central Bank reacted quickly to limit the damarge and to clamp down on illegal financial practices which had overstretched other moneychanging companies.

Despite a 58.9 per cent increase in money supply per annum since 1981, inflation has only increased by 20 per cent, and in 1986 stood at 1 per cent. It partly reflects the strong credit controls on the commercial banks; the high level of investment in the country's development, which has transformed money supply into real assets by virtue of Jordan's strong economic growth; and the high level of indirect taxation which has taken the edge off an explosion in demand for consumer goods.

The banking sector grew rapidly in the late 1970s, spurred by the very large inflows of foreign aid, workers' remittances and receipts from tourism. At the beginning of 1986 of the 19 commercial banks, 9 were either in US or European ownership. There are also 87 money changers. The four largest local banks, the Arab Bank, the Bank of Jordan, the Cairo-Amman Bank and the Jordan National Bank take a major share of the market. The Arab Bank, in particular, is important with its extensive branch network and international business.

Government legislation requiring foreign banks to strengthen their capital base in the country, increasing the level of paid-up capital from JD3 million to at least JD5 million at the beginning of 1986 forced one foreign operator, Chase Manhattan, to pull out of the Jordanian market. The other seven foreign banks have, however, agreed to this increase and have thus retained their licenses.

The Amman stock exchange is one of the Arab world's leading established stock markets. The value of transactions is, however, rather modest, currently running at under $15 million a month.

Institutional finance for industry is provided by commercial banks and finance corporations, the Industrial Development Bank (loans and equity) the Pension Fund and the Social Security Fund (equity) and the Amman Financial Market (loans and equity). Lending to industry by commercial banks is encouraged by the fact that credits to agriculture and industry are excluded in the calculation of their overall credit ceilings. The typical form of commercial bank lending is the revolving credit (presumably mainly for working capital), but during the last few years the banks have also become active in medium-term financing through syndication. The floating of six important issues of bonds and shares, including financing for the fertilizer, glass and aluminium fabricating industries, was facilitated through underwriting, prominently by the Jordan Securities Corporation. Finally, a leasing company was created with IFC participation, which will provide a convenient form of medium-term equipment credit of particular benefit to medium and small companies.

The Industrial Development Bank in 1986 granted 84 new loans for a total loan amount of JD39.26 million to the private sector. Apart from providing long-term loan financing, and some equity financing, it is increasingly active in locating consultants and foreign partners for Jordan industries, in training management (through the Jordan Institute of Management) and in improving financial reporting standards.

As noted earlier commercial loans from international banks are also becoming important sources of industrial finance. Data on Eurocurrency and other international borrowings of the major industrial corporations is, however, not published by the Central Bank or the Statistical Office of the Government of Jordan.

H. Summary

In summary the broad thrust of Jordanian industrial policies is liberal and outward oriented. Jordan operates a flexible trade and exchange rate regime with comparatively few restrictions on the movement of production factors - including profit repatriation - and commodities: an import substitution strategy has been evident in its protectionist structure - but discrimination in favour of such industries has been moderate by developing country standards. The government has actively encouraged the growth of private investment and has sought to promote foreign participation through joint ventures. This has been an objective of industrial policy since the formation of the Hashmite Kingdom. Finally the government has traditionally placed a great deal of emphasis on regional economic integration and co-operation. Arab investors have been accorded treatement similar to national private investors. Jordan is a member of the Arab Common Market. Whereas a large volume of Arab bilateral and multilateral assistance has been achieved, investment integration and polciy harmonization at the regional level remains somewhat limited. Effective regional co-operation remains a vitally important determinant of the effective performance of the Jordanian manufacturing sector in view of the small domestic market and the high level of regional export-orientation.

4.3 Recent trends in industrial policy

The two most important problems Jordan currently faces are rising unemployment and increased external vulnerability. Unemployment has risen from less than 2 per cent in 1975 to over 10 per cent in 1987 - even though the rate of repatriation of Jordanian workers from the Gulf is very modest and 40 per cent of the labour force remains outside the country. Similarly, the size of the current account deficit has grown while worker remittances have stagnated. During 1982-1984 assistance from the Arab countries also fell but there has been a partial recovery since 1985 and Arab donors have committed sizable investments for projects identified by the present Five-Year Plan.

This Plan as noted above has somewhat reduced industry's relative share in total investment and accorded greater priority to agriculture and the development of water resources. Within manufacturing, while the government remains committed to the completion of several natural resource-based projects, special emphasis is placed on the expansion of the engineering sector and of small-scale enterprises. In particular growth of small-scale production can significantly stimulate expansion of jobs within manufacturing. The Plan anticipates an increase of 12,600 jobs within industry and mining. The Plan also seeks to increase the value added stages of domestic production in order to expand the share of the industrial sector in GDP.

During the period 1986-1987 the economy has grown roughly in accordance with the targets specified in the Plan. Manufacturing production registered positive growth during 1986 and 1987, but growth was significantly stronger within the service sector. The growth rate experienced in 1986 was only 1.4 per cent - the lowest for any year since 1973. Production fell sharply for building materials and petroleum products. Growth was high, however, in the potash, soap and detergent producing branches. Phosphate production also grew moderately. Manufacturing growth has been adversely affected by spending cuts introduced by the government in February 1987. These include a virtual ban on public tenders and several measures likely to depress both pay and current expenditure within the state sector. Since most manufacturing enterprises are domestic demand oriented, a compression of domestic income has a large negative impact on sales and production.

Although estimates are not yet available it is likely that investment within the manufacturing sector has not kept pace with the Plan targets. The Plan had placed emphasis upon the growth of private sector investment - anticipating that 43.7 per cent of total investment would come from the private sector. Private investment within manufacturing during 1986 and 1987 is likely to have remained modest due to the depressed demand conditions prevailing in the national economy. Investment is likely to be stimulated, however, by a cut in domestic interest announced by the Bank of Jordan in early 1987 and by the decision to go ahead with completing successfully negotiations leading to a $156 million loan from the Euromoney market.

The government has also remained concerned to promote industrial efficiency by a process of investment, production and rationalization. In early 1987 two major public share holding companies - Jordan Industrial Investment Corporation and Jordan Management Consultancy Corporation - were merged. These companies had sizeable industrial and commercial units and had been experiencing financial difficulties. The new company's capital would be

JD11.5 million including provisions for a JD1 million syndicated loan. The Ministry of Industry is reported to be currently examining about 50 public shareholding companies with a view to suggesting measures for rationalization and modernization.

In 1987 the government announced the recommendation of a Ministerial Committee set up to examine means for stimulating employment. The Committee's recommendations can have a significant impact on employment generation within the manufacturing sector. The committee suggested setting up a training programmes to give job seekers specialized four-month training courses in those areas where vacancies exist. Some 7,000-8,000 people might benefit from these areas. The Vocational Training Corporation has been asked to provide places for an additional 5,000 to help train them in specific areas where Jordan is short of skills. The gap mainly exists in the area of the crafts and middle ranking technical skills, where jobs are widely filled by migrant labour from southern and east Asia. This may fill an important gap in the skills imbalance presently existing.

Finally, increased attention is being given to the problem of regional concentration of industry. During 1986 and 1987 special interest has been expressed in providing assistance for stimulating development within the West Bank. The goverment seeks to mobilize JD398 million for investment during the period 1980-1990.

4.4 The role of multilateral and bilateral technical assistance

Jordan's most important long-term need is to negotiate with its regional partners' patterns of investment and trade integration which provide relatively dependable "niches" for the expansion of manufacturing. International assistance within the industrial sector could give priority to the need for the succesful co-ordination of national investment and trade strategies which deliberately avoid wage cutting competition and create a regional framework for the development and implementation of a regional industrial strategy which can ensure orderly growth and planned structural change. Although Jordan has been an enthusiastic member of several regional arrangements an institutional framework for the effective co-ordination of national industrial strategies has yet to develop. Moreover, problems encountered in the process of creating such a framework has generated a great deal of disillusionment and many regional collaborative arrangements have been allowed to run out of steam. For a small regionally dependent economy like Jordan this can have a very high real cost in the long run. A collapse of the regional markets will seriously evade Jordan's ability to service its mounting external debt - which itself has grown in response to falling levels of regional investment assistance. The provision of multilateral technical assistance to enhance investment co-ordination and trade strategies at a branch and enterprise level within the West Asian region can be very useful for Jordan.

Multilateral technical assistance can also play an important role in the restructuring of the industrial sector. As Chapter 2 has shown, the natural resource-based industries have experienced the most rapid growth in the immediate past and several important projects within these branches are envisaged by the current Plan but the contribution of these branches to the expansion of manufacturing employment is likely to remain limited. Expanding manufacturing employment is an important objective of the Plan and this is a

particularly urgent need because unemployment within the economy has risen sharply in the last decade - even though the level of repatriation of Jordanian workers from the Gulf has remained very low. Expanding employment must require a sustainance of domestic demand - a fall in real wages can have a serious effect on employment levels within the manufacturing sector since most branches depend upon an expansion of domestic demand for sales. Expanding employment also requires the encouragement of the engineering industries and of small scale enterprises. As Chapter 3 has shown these branches employ a relatively labour-intensive production technology and the small-scale sector contains a great deal of native entrepreneurial talent which is one of Jordan's most precious natural resources. The growth of industrial concentration and the wave of migration to the Gulf has seriously depleted these resources. Multilateral technical resources could be provided for the construction of an institutional framework for fostering the growth of both engineering and small-scale industries. The growth of auxillary and other services to stimulte and strengthen engineering production can significantly enhance Jordan's export potential in the medium-run.

Finally, multilateral technical assistance could be provided to enhance industrial efficiency and enhance the ability of major manufacturing enterprises to generate sizeable investible surpluses. The current Five-Year Plan identifies organizational priorities[1/] for:

a) setting up and enforcing standard specifications for manufactured production;

b) establishing training programmes in the field of industrial management, marketing and labour productivity;

c) strengthening the capabilities of government agencies in evaluating feasibility studies, especially for large projects, prior to implementation, and utilizing domestic expertise whereever available;

d) developing industrial data-processing at the Department of Statistics to ensure the provision of accurate and up-to-date information suited to the sector's needs and to feasibility study requirements.

e) regulating the transfer of industrial technology, and regulating agreements and license registration. Upgrading the patent registration and testing office.

f) gearing vocational education towards the needs of domestic industries, and supporting specialized technical training for engineers and technicians working in this sector.

g) equipping large- and medium-scale factories with quality-control laboratories whereever possible; and

h) regulating the accounts auditing profession.

1/ Government of Jordan, Five-Year Plan for Economic and Social Development, 1986-1990, Amman 1986, p.562.

In particular, the improvement of statistical services should be accorded some priority. Data on fixed capital formation at a branch level and on the financial structure of major enterprises remains strictly limited. This represents a major obstacle in the evaluation of the performance of the firms and it impedes the development of a coherent strategy for increasing efficiency within the manufacturing sector.

A list of the completed and operational projects of UNIDO is given in Annex F. Assistance has been provided for the conduct of an industrial survey as an input into the Third Plan, the establishment of industrial estates, investment promotion, standardization and quality control and the organization of a centre for industrial development. Branches to which assistance has been extended include food processing, packaging, industrial machinery, phosphate mining, solar energy, building materials, plastics, paper and pesticides. The assistance programme is constantly reviewed in the light of changes in industrial priorities identified in the Plan and other government policy documents. UNIDO is also ideally placed to play a co-ordinating role in the field of multilateral and bilateral assistance to the industrial sector extended by different agencies within the UN system and bilateral agencies.

ANNEX A

STATISTICAL TABLES

Table A-1: Distribution of GDP by sector of origin, 1970-1984
(at constant 1980 prices)

Year	Agriculture	Total Industrial Activity	Manufacturing	Construction	Wholesale and retail trade, hotels etc.	Transport, storage and communication	Other services	Statistical discrepancy	GDP
	(p e r c e n t a g e)								(million $)
	at constant 1980 prices								
1970	10.2	7.5	4.3	3.9	13.6	8.8	21.9	34.2	1811.9
1971	14.9	6.4	4.2	3.6	13.4	8.6	20.3	32.8	1828.7
1972	15.0	7.2	4.5	4.2	13.3	9.2	21.2	29.9	1933.1
1973	9.1	9.1	5.7	7.3	14.2	10.0	23.0	27.4	1805.3
1974	11.9	11.0	7.9	7.4	13.5	12.3	24.6	19.2	1805.3
1975	9.2	13.3	9.5	7.9	20.0	11.5	27.2	11.0	1790.4
1976	8.5	14.4	10.0	7.9	18.6	11.8	27.8	10.9	2043.2
1977	7.4	14.7	9.5	8.7	17.2	10.7	26.0	15.3	2358.6
1978	7.7	14.9	9.6	9.2	14.8	13.2	26.4	13.7	2815.8
1979	5.1	16.6	10.8	9.7	15.2	10.9	29.9	12.5	3036.9
1980	6.6	17.0	11.1	10.0	16.8	9.6	29.7	10.3	3286.9
1981	6.9	17.2	11.6	10.0	16.9	9.7	28.4	10.9	3493.1
1982	7.0	16.5	11.4	9.7	16.7	10.0	28.7	11.3	3748.7
1983	6.6	16.3	11.2	9.6	15.9	10.6	27.8	13.2	3990.4
1984	6.0	16.5	11.2	8.8	15.4	10.8	27.1	15.4	4189.1

Source: Statistics and Survey Unit, UNIDO.
Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

Note: i) Due to statistical discrepancies GDP may differ from the sum of its components.
ii) Total Industrail Acticity is comprised of mining and quarrying, manufacturing, electricity, gas and water.

Table A-2: International comparisons of economic performance, 1970-1984
(at 1980 prices)

Indicator	Year or period	Jordan	Western Asia	Developing countries Total	Developed Market Economies
GDP per capita (US $)	1970	788	2231	723	7910
	1975	689	2899	860	8763
	1980	1124	3546	970	9950
	1983	1228	3235	942	10119
	1984	1239	3205	948	10516
MVA per capita (US $)	1970	34	187	111	2028
	1975	68	246	137	2145
	1980	124	289	163	2519
	1983	137	323	156	2529
	1984	139	341	161	2685
Total exports/capita (US $)	1970	67	1545	221	1219
	1975	195	1850	241	1552
	1980	538	1898	261	2031
	1983	605	1272	238	2097
	1984	593	1186	243	2264
Total imports/capita (US $)	1970	299	327	130	1415
	1975	501	675	182	1650
	1980	1104	1111	240	2111
	1983	1319	1283	227	2153
	1984	1192	1276	226	2381
Total exports/GDP (percent)	1970	8.6	69.2	30.6	15.4
	1975	28.2	63.8	28.0	17.7
	1980	47.9	53.5	26.9	20.4
	1983	49.2	39.3	25.3	20.7
	1984	47.8	37.0	25.6	21.5
Total imports/GDP (percent)	1970	37.9	14.7	18.0	17.9
	1975	72.8	23.3	21.2	18.8
	1980	98.2	31.3	24.7	21.2
	1983	107.4	39.7	24.1	21.3
	1984	96.2	39.8	23.8	22.6
Gross fixed capital formation per capita (US $)	1970	79	231	128	1876
	1975	185	482	183	1929
	1980	457	791	221	2184
	1983	538	1012	206	2125
	1984	572	1000	200	2272
GFCF/GDP (percent)	1970	10.1	10.4	17.7	23.7
	1975	26.9	16.6	21.3	22.0
	1980	40.6	22.3	22.8	21.9
	1983	43.8	31.3	21.8	21.0
	1984	46.1	31.2	21.1	21.6

Source: Statistics and Survey Unit, UNIDO.
Based on data supplied by the U.N. Statistical Office, with estimates by the UNIDO Secretariat.

Table A-3: Comparative growth rates by economic sector, 1970-1984
(at constant 1980 prices)

Sectors	Period	Jordan	Western Asia	Developing countries Total	Developed Market Economies
Agriculture	1970-1980	-2.2	3.8	2.4	1.2
	1981-1984	1.1	1.8	2.2	0.9
	1970-1984	1.1	3.6	2.4	1.4
Total Industrial Activity(incl. MVA)	1970-1980	17.9	5.2	4.4	3.0
	1981-1984	4.9	0.8	1.9	2.6
	1970-1984	15.1	2.9	2.9	2.6
Manufacturing	1970-1980	18.6	7.9	6.5	3.0
	1981-1984	5.0	7.1	2.4	2.8
	1970-1984	15.7	7.2	5.2	2.6
Construction	1970-1980	18.1	15.9	8.4	0.5
	1981-1984	2.3	1.9	-1.8	0.0
	1970-1984	14.6	12.2	6.0	0.0
Wholesale & retail trade, hotels e.t.c	1970-1980	9.0	9.6	5.3	3.3
	1981-1984	2.8	4.6	1.4	2.3
	1970-1984	8.7	8.2	4.4	2.8
Transport, storage and communication	1970-1980	8.9	7.9	8.2	4.1
	1981 1984	10.4	5.9	2.5	1.6
	1970-1984	8.2	7.0	6.8	3.4
Other services	1970-1980	10.4	9.4	6.6	3.6
	1981-1984	4.4	5.4	2.6	2.7
	1970-1984	9.8	8.2	5.6	3.4
GDP per capita	1970-1980	3.9	5.0	3.1	2.3
	1981-1984	2.3	-2.7	-0.6	1.5
	1970-1984	4.5	2.9	2.0	1.9
MVA per capita	1970-1980	15.9	4.8	3.9	2.1
	1981-1984	1.1	4.1	0.0	2.1
	1970-1984	12.7	4.1	2.7	1.7

Source: Statistics and Survey Unit, UNIDO.
Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

Table A-4: Annual growth rates and structure of employment by major sectors, 1972-1983

	1972-1979	1972-1975	1975-1979	1979-1983	Share (Per cent) 1979	1983[a/]
Agriculture	-3.5	-3.4	-3.6	4.9	10.0	10.1
Mining	11.9	9.1	14.1	1.1	1.0	0.9
Manufacturing	5.9	7.4	4.8	5.6	9.7	10.0
Chemicals & petro-chemicals	10.6	9.1	12.7	6.3	1.0	1.1
Non-metallic mineral products	13.3	3.2	21.5	6.4	1.1	1.2
Other	4.5	7.6	2.3	5.4	7.6	7.7
Electricity, gas & water	18.0	15.2	20.0	14.1	1.3	1.9
Construction	15.1	6.0	22.5	3.3	16.0	15.1
Trade	-3.9	3.3	-9.0	4.2	9.6	9.4
Transportation	6.1	10.2	3.1	6.4	7.7	8.2
Finance	9.0	11.5	7.2	1.3	2.3	2.0
Public administration	5.2	4.7	5.6	6.0	35.9	37.6
Other	6.7	5.9	7.3	-3.3	6.6	4.8
TOTAL	4.3	4.2	4.4	4.7	100.0	100.0
Non-agriculture	5.5	5.6	5.5	3.8	90.0	89.9

Source: World Bank, Jordan - Issues of employment and labour market imbalances, Report No. 5117-JO, 1986

a/ Bank manpower model estimate, assuming that the total employment reached 509 thousand in 1983. If one would assume that the total number of foreigners are substantially higher than projected in the model the growth of employment would reach 8 per cent per annum.

Table A-5: Production of principal industrial products, 1976-1986

Year	Liquid batteries	Paper and cardboard	Petroleum products	Metallic pipes	Iron	Cement	Deter-gents	Chemical acids	Ferti-lizers	Sole leather and wool	Upper leather	Spinning	Textiles	Cigarettes	Alcoholic drinks	Fodder
	1000 units	1000 ton	1000 ton	1000 ton	1000 ton	1000 ton	1000 ton	1000 ton	1000 ton	ton	1000 sq.ft.	ton	1000 Yards	mill. units	1000 litre	1000 ton
1976	47.0	5.4	1,145.0	-	62.4	582.4	5.0	-	-	162.5	2,216.9	...	915.5	2,224.1	6,329.9	50.9
1977	51.0	5.2	1,145.5	-	63.8	537.6	6.0	-	-	345.6	2,526.8	...	869.8	2,454.3	5,749.3	42.0
1978	44.3	4.6	1,396.6	6.2	65.3	553.0	7.0	-	-	197.9	2,807.9	...	1,140.9	2,628.0	5,654.2	51.8
1979	62.9	7.1	1,612.4	10.8	81.0	623.2	10.6	-	-	190.7	2,448.9	747.9	1,416.7	3,414.1	7,206.7	51.7
1980	66.3	8.8	1,760.0	11.8	86.2	912.7	15.3	-	-	103.0	2,502.7	762.3	1,641.2	4,188.3	6,776.1	47.9
1981	57.3	15.4	2,126.0	15.8	134.9	964.7	15.3	-	116.4	118.3	2,107.4	667.6	1,308.0	4,711.4	9,005.8	55.4
1982	40.4	15.0	2,463.9	12.5	192.7	788.4	15.2	-	301.6	38.8	2,268.3	571.9	1,123.5	4,613.7	9,483.9	63.6
1983	36.5	11.9	2,499.0	12.9	209.9	1,269.0	12.7	632.5	541.0	37.2	2,334.4	1,151.8	1,130.6	4,067.4	7,158.2	60.9
1984	50.1	18.0	2,510.9	14.7	164.9	2,026.3	25.5	1,194.6	510.5	43.9	2,145.7	1,831.1	1,314.5	4,341.9	7,202.0	61.2
1985	49.6	21.1	2,423.9	14.2	198.4	2,022.9	15.0	1,007.6	551.1	29.3	1,937.8	1,660.3	2,249.0	3,538.1	5,547.2	45.9
1986	55.7	15.1	2,257.1	12.5	209.6	1,794.7	28.1	1,024.8		18.1	2,393.1	987.0	2,249.2	3,327.7	5,457.2	44.6

Source: Central Bank of Jordan, Monthly Statistical Bulletin, March 1987, pp. 74-75.

Table A-6: Indicators of industrial growth by branch of manufacturing, 1975-1984

Description (ISIC)	Growth of value added at 1980 prices	Growth of employment	Growth of value added per employee
	1975-1984	1975-1984	1975-1984
Food products(311)	0.19 a/	1.47	1.45 a/
Beverages(313)	10.48	7.94	2.35
Tobacco(314)	12.25	3.76	8.18
Textiles(321)	5.15	-3.29	8.72
Wearing apparel,except footwear(322)	...	0.86	...
Leather products(323)	-17.74 b/	-3.60	-13.98 b/
Footwear,except rubber or plastic(324)	...	0.29	...
Wood products,except furniture(331)	...	11.47	...
Furniture,except metal(332)	...	11.48	...
Paper and products(341)	10.11 c/	13.92	-7.77 c/
Printing and publishing(342)	...	15.28	...
Industrial chemicals(351)	22.19 c/	...	...
Other chemicals(352)	13.18	...	...
Petroleum refineries(353)	10.27 a/	3.74	5.57 a/
Misc. petroleum and coal products(354)	...	...	...
Rubber products(355)	...	-31.22	...
Plastic products(356)	...	23.03	...
Pottery,china,earthenware(361)	...	...	...
Glass and products(362)	...	12.29	...
Other non-metallic mineral prod.(369)	13.29	12.27	0.91
Iron and steel(371)	19.40 c/	...	...
Non-ferrous metals(372)	...	...	...
Fabricated metal products(381)	...	...	...
Machinery,except electrical(382)	...	17.52 d/	...
Machinery electric(383)	-0.59	-7.82	7.84
Transport equipment(384)	...	-31.25	...
Professional & scientific equipm.(385)	...	...	...
Other manufactured products(390)	...	18.69	...

Source: Statistics and survey Unit, UNIDO. Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

a/ 1975-1982
b/ 1975-1983
c/ 1975-1980
d/ 1975-1978

Table A-7: Annual growth rates of value added and productivity, 1980-1990
(per cent)

	1980		1981		1982		1983		1984		1985		1986		1987		1988		1989		1990		Averages 4/ 1980-85		Averages 4/ 1986-90	
	V.A.	Prod	V.A.	Prod	V.A.	Prod	V.A.	Prod	V.A.	Prod	V.A.	Prod	V.A.	Prod	V.A.	Prod	V.A.	Prod	V.A.	Prod	V.A.	Prod	V.A.	Prod	V.A.	Prod
Agriculture	39.2	25.0	11.6	7.5	9.9	4.8	5.0	4.5	5.0	3.5	5.0	3.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0	4.5	12.6	8.1	5.0	4.5
Mining & Quarrying 1/	1.6	1.0	-11.1	-11.0	1.8	1.5	20.6	15.1	30.2	15.0	13.7	10.0	14.7	8.0	8.8	7.0	5.1	4.0	25.0	5.0	25.0	5.0	9.5	5.3	15.7	5.8
Chemicals & Petroleum 2/	11.0	5.0	27.6	14.0	6.6	0.0	9.5	4.0	11.7	8.7	11.8	9.5	4.5	2.2	7.5	3.0	7.5	3.0	7.5	3.0	7.5	3.0	13.9	6.9	6.9	2.8
Non-Metals 3/	20.5	10.0	17.0	6.0	-19.8	-21.0	75.3	65.0	37.9	20.0	49.8	25.0	9.0	6.5	7.5	5.0	7.5	5.0	7.5	5.0	7.5	5.0	30.2	18.8	7.8	5.3
Other Manufactures	6.3	3.5	35.1	12.0	0.0	0.0	0.0	0.0	2.0	0.5	5.0	1.0	4.0	1.2	7.5	2.0	7.5	2.2	7.5	2.2	7.5	2.2	8.4	2.8	6.8	2.4
Electricity & Water	33.3	2.3	0.0	0.0	14.2	2.3	6.0	1.8	6.0	1.8	6.0	1.8	5.0	1.6	5.0	1.6	5.0	1.6	5.0	1.6	5.0	1.6	14.5	1.7	5.0	1.6
Construction	10.9	2.4	6.3	2.3	2.4	1.9	3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.8	2.1	3.0	2.0
Trade	14.7	5.5	6.4	1.5	8.0	3.3	2.9	1.5	3.2	1.5	3.2	1.3	3.2	1.5	3.7	1.5	3.2	1.5	3.3	1.5	3.3	1.5	6.4	2.8	3.3	1.5
Transportation	-17.5	-3.0	7.8	6.0	10.6	7.0	2.9	1.5	3.2	1.5	3.2	1.8	3.2	1.8	3.7	1.8	3.2	1.8	3.3	1.8	3.3	1.8	7.5	2.5	3.3	1.8
Finance	3.2	1.8	3.2	1.8	3.2	1.8	2.9	1.5	3.2	1.5	3.2	1.8	3.2	2.0	3.7	2.0	3.2	2.0	3.3	2.0	3.3	2.0	3.1	1.7	3.3	2.0
Public Administration	15.9	4.7	0.4	0.1	11.3	3.7	2.9	0.2	3.2	0.2	3.2	0.2	3.2	0.2	3.7	0.2	3.2	0.2	3.3	0.2	3.3	0.2	6.1	1.9	3.3	0.2
Other Services	3.3	0.3	3.0	0.3	3.0	0.3	2.3	0.3	1.8	0.3	3.2	0.3	3.2	0.3	3.7	0.3	3.2	0.3	3.3	0.3	3.3	0.3	2.7	0.3	3.3	0.3

1/ Phosphate mine begins operations in 1989.
2/ Fertilizer plant starts operation late 1982, expected to be at full capacity in 1985.
3/ Non cement factory begins operations in 1984.
4/ Averages for 1980-85 are six year averages, i.e. including 1979-80.

Source: World Bank, Jordan: Issues of Employment and Labour Market Imbalances, Report No. 5117-JO, 1986.

Table A-8: Capacity utilization in selected sub-sectors of manufacturing, 1984

	Units	Installed capacity	Production	Capacity utilization
Food industries				
Dairy products	tons	51,500	30,926	60.1
Fruits & vegetables	"	10,400	7,295	70.1
Oils & fats	"	6,340	1,902	30.0
Grain mill products	"	419,550	352,434	84.0
Bakery & biscuits	"	785,120	471,073	60.0
Sugar products	"	930	491	52.8
Chocolate products	"	21,950	10,661	48.6
Other foods[1/]	"	1,484	772	52.0
Animal feeds	"	285,300	128,389	45.0
Liquors	'000 Ltr.	6,290	2,553	40.6
Beer	"	12,500	5,021	40.2
Soft drinks & mineral water	"	162,280	105,485	65.0
Cigarettes	tons	7,200	5,027	69.8
Textile industries				
Cotton & cotton blended yarn	tons	2,000	1,862	93.1
Woolen worsted fabrics	"	600	516	86.0
Schoolchildren's uniform fabrics	"	570	179	31.4
Wool-mix blankets	"	185	48	26.0
Acrylic blankets	"	140	54	38.6
Head dresses	"	35	18	51.4
Towels & bed sheets	"	80	54	67.51
Under- & outwear	"	940	674	71.7
Socks	Dozen	162,000	108,000	66.7
Wool carpets	tons	115	27	23.5
Acrylic carpets	"	75	13	17.3
Pray carpet	"	45	42	93.3
Wearing apparel	'000 pieces	5,038	3,778	75.0
Chemical industries				
Gases: - oxygen	m^3	2,000,000	260,000	13.0
- acetylene	tons	200	75	37.5
Chlorine, caustic soda & hydrochl. acid	"	12,000	7,500	62.5
Polymer intermediates	"	13,000	4,975	38.3
Pesticides	litres	125,000	50,000	40.0
Diammonium phosphate	tons	550,000	548,417	99.7
Phosphoric acid	"	32,000	31,320	99.9
Aluminium fluoride	"	10,000	2,300	23.0

	Units	Installed capacity	Production	Capacity utilization
Paints	tons	25,000	14,100	56.4
Thinners	"	1,000	676	67.6
Wall pastes	"	2,500	868	34.7
Human drugs)				
Veterinary drugs)	'000 units	160,000	100,000	62.5
Detergents	tons	45,000	33,056	73.5
Paste detergents	boxes	47,300	47,216	99.8
Toilet soap	tons	5,000	772	15.4
Matches	'000 boxes	1,000,000	500,000	50.0
Petroleum refined products	tons	5,000,000	2,581,000	51.6
Rubber	"	150	52.5	35.0
Plastic pipes	"	9,000	5,089	56.5
Plastic bags	"	7,500	4,997	66.0
Plastic containers	"	9,500	6,275	66.1
Polystyrene boxes	"	6,000	1,625	27.1
Agriculture plastic houses	units	3,000	1,988	66.3
Ball pens	mill units	4	3.9	97.5
Houseware goods	tons	16,250	8,059	49.6
Brushes	"	2,200	1,113	50.6
Matresses	m^2	240,000	81,984	34.2
Building materials				
Pottery	tons	8,100	3,240	40.0
China tiles	m^2	380,000	378,200	99.5
Earthenware	tons	1,800	1,649	91.6
Glass sheets	"	26,000	2,616	10.1
Glass products	"	1,500	915	61.0
Portland cement	"	2,000,000	1,880,351	94.0
Cement tiles	m^2	4,350,000	2,394,564	55.0
Cement blocks	pieces	9,234,000	2,770,286	30.0
Concrete poles	"	10,000	9,820	98.2
Concrete pipes	metres	536,000	375,168	70.0
Ready-mix concrete	tons	352,000	144,470	41.0

Source: UNIDO project SI/JOR/86/805, Industrial Survey (Restricted) based on industrial Survey Questionnaires, 1984, Ministry of Industry and Trade, as well as companies' yearbooks and information.

a/ Includes food products according to ISIC No.3221 such as jelly, spices, ready-to-eat meals, citric acid, etc.

Table A-9: Sectoral investment outlays in the Third Five-Year Plan, 1986-1990
(JD million)

Sector	Private Sector	Public Sector			Total
		Central Government	Autonomous Institutions	Total Public Sector	
1. Administration & Legislation	—	0.6	—	0.6	0.6
2. Science & Technology	—	1.7	10.6	12.3	12.3
3. Environment	0.8	0.7	—	0.7	1.5
Total Comprehensive Sectors	0.8	3.0	10.6	13.6	14.4
4. Labour & Manpower	0.5	2.1	1.5	3.6	4.1
5. Social Development	15.5	9.6	—	9.6	25.1
6. Women's Affairs	0.3	3.6	—	3.6	3.9
7. Youth	—	26.3	—	26.3	26.3
8. Health	7.5	49.9	5.0	54.9	62.4
9. Education	16.3	136.4	—	136.4	152.7
10. Higher Education	12.0	1.3	80.1	81.4	93.4
11. Awqaf	12.2	4.9	—	4.9	17.1
12. Information	—	20.7	—	20.7	20.7
13. Culture	—	9.6	—	9.6	9.6
14. Housing & Government Buildings	353.5	43.0	161.5	204.5	558.0
15. Tourism & Antiquities	43.6	9.3	10.9	20.2	63.8
16. Trade & Supply	13.0	12.6	6.8	19.4	32.4
17. Municipal & Rural Affairs	104.8	1.0	48.3	49.3	154.1
Total Social & Services Sectors	579.2	330.3	314.1	644.4	1223.6
18. Construction	99.3	—	—	—	99.3
19. Transportation	179.0	220.3	50.3	270.6	449.6
20. Telecommunications	—	97.3	—	97.3	97.3
21. Energy & Resources	72.5	52.1	139.3	191.4	263.9
22. Water & Irrigation	—	117.1	163.3	280.4	280.4
Total Infrastructure Sectors	350.8	486.8	352.9	839.7	1190.5
23. Agriculture & Cooperatives	210.5	83.3	—	83.3	293.8
24. Industry & Mining	340.8	19.2	33.2	52.4	393.2
Total Productive Sectors	551.7	102.5	33.2	135.7	687.0
Total Investment	1482.0	922.6	710.8	1633.4	3115.5

Source: Government of Jordan, Five-Year Plan for Economic and Social Development, 1986-1990.

Table A-10: Summary of science and technology projects, 1986-1990
(JD '000)

		1986	1987	1988	1989	1990	Total
A.	**Investment Projects**						
1.	Expansion of Computer Science Instruction	100	100	100	100	100	500
2.	Establishment of Advance Management Institute	1000	1000	1000	—	—	3000
3.	Building Research Center Laboratory Equipment	100	100	50	50	50	350
4.	Expanding the Mechanical Engineering Laboratories	100	100	50	50	50	350
5.	Expanding the Industrial Chemistry Laboratories	600	600	150	150	—	1500
6.	Equipment for the Solar and Wind Energy Laboratories	100	100	50	50	50	350
7.	Equipment for the Laboratory of the Electronic Services and Training Center	200	200	200	—	—	600
8.	Center for Scientific and Technological Information	100	100	—	—	—	200
9.	Training Building	70	215	215	—	—	500
10.	Manpower Training	60	60	60	60	60	300
11.	Development of Agricultural Statistics	100	100	100	100	100	500
12.	Establishment of a National Data Bank	100	—	—	—	—	100
13.	The Geodetic Network /III	100	100	100	100	100	500
14.	Equipment and Instruments	140	100	83	100	77	500
15.	Revising and Updating Maps	100	100	100	100	100	500
16.	Aerial Photography Airfract	600	350	—	—	—	950
17.	Remote Sensing	55	55	55	55	50	270
18.	Geographic Data System	60	10	—	—	—	70
19.	Building for Field Groups	40	40	40	40	20	180
20.	Arab Regional Training Center for the Surveying Sciences	100	100	100	100	100	500
21.	Upgrading the Cadastral Data System	40	40	40	40	40	200
22.	Equiping Field Surveying Groups	79	71	71	71	71	363
	Total (A)	3944	3641	2564	1166	968	1228

Table A-10 (Continued)

		1986	1987	1988	1989	1990	Total
B.	Other Projects						
23.	National Survey of the S & T Potential	100	—	—	—	100	200
24.	National Awareness of S & T Services	50	—	—	—	—	50
25.	Legislation Pertaining to Science and Technology	50	—	—	—	—	50
26.	National Survey of S & T Services	100	—	—	—	100	200
27.	Research and Development in the Various Sectors	100	—	—	—	100	200
28.	Workshops	35	35	35	35	35	175
29.	Health and Nutrition Study	—	107	—	—	—	107
30.	Manpower Survey	—	331	—	—	—	331
31.	Women, Youth and Children Study	—	119	—	—	—	119
32.	Study of Household Economic Activities	—	—	288	—	—	288
33.	Population and Housing Census	—	—	—	3600	—	3600
34.	Fertility and Household Health Survey	—	—	—	—	79	79
35.	Statistical Training	34	23	—	5	—	62
36.	Numerical Wage and Salary Index	—	215	—	—	—	215
37.	Wholesale Price Index and Industrial Sector Index	—	—	107	—	—	107
38.	Tourism Revenue Study	—	—	31	—	—	31
39.	Census of Establishments	—	—	—	82	—	82
40.	Industrial Census	—	—	—	181	—	181
41.	Household Income Study	—	—	—	121	—	121

Table A-10 (Continued)

	1986	1987	1988	1989	1990	Total
42. Upgrading Directorate of Modern Applications	95	72	54	51	51	323
43. Land Acquisition	59	59	59	59	59	295
Total (B)	623	961	574	4134	524	6816
Grand Total (A + B)	4567	4602	3138	5300	1492	19099

Summary of Financing of S & T Projects

(JD 000)

	1986	1987	1988	1989	1990	Total
General Budget	1942	1753	1125	4685	976	1048
External Finance	2625	2849	2013	615	516	8618
Total	4567	4602	3138	5300	1492	19099

Source: Government of Jordan, Five-Year Plan for Economic and Social Development, 1986-1990.

Table A-11: Summary of manpower projects, 1986-1990
(JD '000)

	1986	1987	1988	1989	1990	Total
1. Social Security Computer	200	300	—	—	—	500
2. Development of Labor Market Information	100	50	—	—	—	150
3. Vocational Training Centre in the Industrial Estate/Irbid	157	407	—	—	—	564
4. Driver and Training Center Aqaba	110	278	—	—	—	388
5. Vocational Training Center /Aqaba	75	446	—	—	—	521
6. Vocational Training Center/South Ghor	—	—	75	417	—	492
7. Vocational Training Center Industrial Establishments (Private Sector)	92	92	92	92	92	460
8. Vocational Health and Safety Institute in Amman	124	405	—	—	—	529
9. Expansion of Existing Training Centers (Yajouz & Hashimiya)	146	312	—	—	—	458
Total	847	2040	574	509	92	4062

Source: Government of Jordan, Five-Year Plan for Economic and Social Development, 1986-1990

Table A-12: Government share in mixed corporations,[a/] 1981
(JD '000)

	Nominal Capital		Paid up Capital	
	Total (Thousand JD)	Government Share (%)	Total (Thousand JD)	Government Share (%)
Jordan Cement Co.	22,500	29.7	6,172	100.0
Jordan Refinery Co.	32,000	3.1	32,000	3.1
Jordan Phosphate Co.	10,000	89.0	10,000	89.0
Arab Potash Co.	63,000	51.0	25,436	97.8
JordanFertilizer Industry Co.	40,000	25.8	25,725	24.1
Vegetable Oil Co.	500	11.0	500	11.0
Arab Pharmaceutical Industries Co.	2,000	7.0	2,000	7.0
Jordan Tannery Co.	800	18.7	800	18.7
Jordan Hotels & Tourism Co.	723	85.7	723	85.7
Jordan Electric Co.	6,660	9.0	4,657	13.1
Irbid Electric Co.	2,000	46.5	1,999	46.5
Holy Land Hotels Co.	600	83.3	600	83.3
Agricultural Industries Co.	2,250	2.2	1,151	4.3
Jordan Mineral Co.	1,000	3.5	62	56.5
Jordan Glass Co.	3,500	15.4	104	38.5
Jordan Textile Co.	600	23.8	600	23.8
Tourism Transport Co.	300	8.3	169	14.8
Industrial Development Co.	250	28.4	230	30.9
Jordan Dairy Product Co.	1,750	1.7	1,750	1.7
Aqaba Hotels Co.	300	43.3	293	44.4
Jordan Ceramic Co.	2,000	1.2	2,000	1.2
Industrial Development Co.	6,000	18.5	3,000	37.0
Agricultural Products Processing Co.	600	41.7	250	100.0
Carton and Paper Co.	1,500	7.4	1,500	7.4
Housing Bank	18,000	5.5	11,500	4.3
Public Mining Co.	1,000	51.0	1,000	51.0
Jordan National Maritime Co.	2,000	20.0	100	100.0
Arab International Hotels Co.	6,000	8.7	322	100.0

Table A-12 (Continued)

	Nominal Capital		Paid up Capital	
	Total (Thousand JD)	Government Share (%)	Total (Thousand JD)	Government Share (%)
Arab Mining Co.	111,000	1.0	320	100.0
Jordan Co. for Tourism and Mineral Water	2,500	41.0	1,150	89.1
Livestock Development Co,	55,000	1.0	325	100.0
Arab Investment Co.	66,000	.5	305	100.0
Arab Co. for Maritime Transport	4,454	3.4	152	100.0
Jordan-Syrian Co. for Land Transport	8,000	50.0	2,500	100.0
Jordan-Iraqi Co. for Land Transport	7,500	50.0	3,750	100.0
Jordan-Syrian Maritime Co.	10,000	50.0	440	100.0
Jordan Syrian Industrial Co.	20,000	50.0	700	100.0
Jordan Syrian Free Industrial Zone	5,000	50.0	412	100.0
Jordan Holiday-Inn Co.	2,400	16.0	634	60.6
Total	519,687	18.3	145,331	43.6

Source: Government of Jordan, Budget Department.

a/ Includeds participation by autonomous public institutions.

Table A-13: Sectoral distribution of outstanding commercial banks' credit 1976-1986[a/]

End of period	Municipalities and Public corporations	Agriculture	Mining	Industry	General Commerce and trade	Construction	Transportation	Tourism, hotels and restaurants	Financial institutions	Professional and Private individuals	Other	Total
1976	12,261	5,162	332	21,808	81,614	50,042	7,779	2,518	557	11,365	13,653	207,091
1977	17,919	8,311	233	26,599	81,427	65,784	11,083	3,422	585	13,075	15,617	244,055
1978	24,023	12,706	1,711	36,578	100,531	100,541	8,379	6,617	1,184	21,212	19,322	332,799
1979	27,756	17,361	4,038	56,477	134,236	150,994	13,040	9,657	4,756	29,662	17,082	465,059
1980	31,851	17,205	4,357	68,718	166,956	180,758	14,479	11,843	8,699	38,717	20,273	563,856
1981	45,000	19,386	6,827	82,427	225,791	201,036	23,286	15,890	9,359	60,834	31,471	721,317
1982	64,499	24,630	14,069	98,532	284,944	216,753	32,887	20,485	19,602	69,596	41,174	887,171
1983	65,434	25,626	20,542	118,428	276,650	271,345	50,483	25,683	25,637	108,096	42,998	1,030,922
1984	85,064	25,659	27,416	142,372	296,097	324,055	58,482	23,716	29,592	121,459	50,913	1,184,825
1985	117,188	26,298	32,070	157,165	308,555	331,569	64,029	29,825	26,933	127,563	53,221	1,274,416
1986	142,483	32,671	44,281	176,743	338,744	353,679	49,364	37,530	29,209	137,255	53,454	1,395,412

Source: Central Bank of Jordan, Monthly Statistical Bulletin, March 1987, p.31.

a/ Including Housing Bank.

Table A-14: Loan repayments and disbursement of specialized credit institutions, 1976-1986
(JD '000)

	Housing Corporation		Jordan Co-operative Organization		Agricultural Credit Corporation		Cities and Villages Development Bank		Industrial Development Bank		Housing Bank		Total	
Period	Repayment	Disbursement	Repayment	Disbursement	Repayment	Disbursement	Repayment	Disbursement	Repayment	Disbursement	Repayment	Disbursement	Repayment	Disbursement
1976	470	283	1,022	2,338	1,659	2,516	708	1,851	766	3,089	1,005	19,046	5,630	29,123
1977	338	765	1,217	1,981	1,764	2,685	882	2,357	1,166	3,745	2,225	21,828	7,592	33,361
1978	347	9	1,317	2,927	2,245	3,215	984	2,929	2,010	3,853	5,637	23,707	13,140	36,640
1979	391	98	2,083	4,044	2,153	3,266	1,098	2,412	1,918	4,021	12,497	32,790	20,140	46,631
1980	698	13	2,768	6,260	2,829	4,147.	1,310	2,722	2,572	5,067	20,686	42,311	30,863	60,520
1981	628	104	4,100	7,814	3,401	6,632	1,833	3,843	5,502	8,910	37,375	58,227	52,839	85,530
1982	994	2,249	3,662	11,410	3,528	6,466	3,673	11,595	4,584	11,095	48,336	80,223	64,777	123,038
1983	2,267	4,744	3,443	6,428	4,028	5,811	5,873	14,134	4,788	9,674	27,594	69,701	47,993	110,492
1984	1,277	2,447	3,234	4,199	4,564	5,042	6,366	10,818	7,200	6,723	31,418	79,966	54,059	109,195
1985	1,691	3,303	2,598	3,363	4,827	8,226	5,750	9,245	7,377	6,899	68,501	98,891	90,744	129,927
1986	3,392	11,355	1,300	961	4,075	6,243	6,180	9,822	8,666	8,678	51,412	70,573	75,025	107,632

Source: Central Bank of Jordan, Monthly Statistical Bulletin, March 1987, p.36.

Note: Repayment means principal, except for Housing corporation where interest is included.

Table A-15: Value of selected performance indicators, 1984
(Establishments employing more then 5 persons)

	A	B	C	D	E (JD)	F	G
Mining	.172	.011	.113	.057	9,444	.385	1.025
Food	.75	1.257	.086	.021	3,432	.452	1.018
Beverages	.44	.414	.177	.091	10,183	.62	1
Tobacco	.26	.243	.008	.005	45,080	.882	1.001
Textiles	.593	1.216	.088	.034	4,737	.964	1.027
Clothing	.882	.975	.044	.017	1,803	.612	1.133
Leather	.784	1.33	.298	.097	2,719	.731	1.04
Footwear	.811	.136	.066	.04	3,912	.144	1.308
Furniture	.751	3.117	.275	.038	1,170	.714	1.011
Paper	.746	1.784	.07	.018	4,018	.731	1.002
Printing	1.045	.74	.082	.054	3,319	.725	1.577
Chemicals	.805	2.227	.234	.032	9,232	.405	1.005
Petrol refining	1.056	7.878	.036	.055	11,301	1.014	1.202
Plastic	.655	1.458	.184	.057	4,100	.824	1.006
Non-metal minerals	.232	.083	.16	.087	9,324	.328	.012
Basic metals	.735	3.703	.059	.01	5,575	.913	1.01
Machiner, Electrical machinery	.754	.882	.079	.027	2,234	.543	1.042
	.58	.378	.35	.165	2,885	.497	1
Transport	1.1	.186	.098	.1	2,549	.33	1.765

Source: Calculations are based on industry statistics supplied by the Department of Statistics, Industrial Census 1984, Amman 1986, pp.13-30.

A = The ratio of industrial cost (cost of raw material + wages) to the value of output at current prices.

B = The ratio of raw material imports to value added at current prices.

C = The ratio of book value of fixed investment to value added at current prices.

D = The ratio of book value of fixed investment to value of output at current prices.

E = Value added per employee.

F = The share of imported raw material cost in cost of total raw material at current prices.

G = The ratio of net revenue to value of output, both at current market prices.

Table A-16: Manufacturing value added and number of establishments by governorates, 1984
(Firms employing 5 persons or more)

Governorate	Proportion of value added to revenue per cent	Total revenue (JD)	Value added per cent	Value added (JD)	No. of establishments
Amman	26.2	653,430,689	63.70	171,233,313	1,244
Irbid	51.26	15,967,044	3.04	8,183,923	253
Balqa	49.21	74,845,662	13.70	36,833,802	57
Karak	49.50	95,223,409	17.53	47,132,307	30
Ma'an	4.56	119,603,163	2.03	5,454,762	102
TOTAL	28.03	959,069,967	100.00	268,838,107	1886

Source: Government of Jordan, Industrial Census 1984, Amman 1986, p.32.

Table A-17: Distribution of establishments by governorates, paid workers, average salary and wages and salaries, 1984
(Firms employing 5 persons or more)

Governorate	Average salary Average salary (JD)	Wages and Salaries (JD)	No. of Employees	No. of Establishments
Amman	1,653.60	46,844,668	28,329	1,244
Irbid	1,096.80	2,656,389	2,422	253
Balqa	2,118.60	5,150,336	2,431	57
Karak	2,969.40	13,374,384	4,504	30
Ma'an	2,271.89	4,973,176	2,189	102
TOTAL	1,830.69	72,998,953	39,875	1,686

Source: Government of Jordan, Industrial Census 1984, Amman 1986, p.31.

Table A-18: Manufacturing value added and number of establishments by governorates, 1984
(Firms employing less than 5 persons)

Governorate	Proportion of value added to revenue per cent	Total revenue (JD)	Value added per cent	Value added (JD)	No. of establishments
Amman	0.51	29,170,819	70.37	15,006,437	4,731
Irbid	0.50	8,750,953	20.71	4,417,687	1,464
Balqa	0.52	1,478,875	3.59	764,721	254
Karak	0.49	993,302	2.30	491,105	182
Ma'an	0.59	1,097,454	3.03	646,195	216
TOTAL	0.51	41,491,403	100.00	21,326,145	6,847

Source: Government of Jordan, Industrial Census 1984, Amman 1986.

Table A-19: Distribution of establishments by governorates, paid workers, average salary and wages and salaries, 1984
(Firms employing less than 5 persons)

Governorate	Average salary Average salary (JD)	Wages and Salaries (JD)	No. of Employees	No. of Establishments
Amman	942.4	5,043,597	5,352	4,731
Irbid	812.5	1,239,938	1,526	1,464
Balqa	906.6	251,128	277	254
Karak	866.0	161,950	187	182
Ma'an	840.7	200,088	238	216
TOTAL	909.9	6,896,701	7,580	6,847

Source: Government of Jordan, Industrial Census 1984, Amman 1986, p.53.

a/ Firms employing less than 5 persons.

Table 4-20: Origin of imports by industry, 1985

Description of traded goods (SITC)	World total (in 1000 current US $)	Developing countries	Developed market economies				Centrally planned economies
			Total	USA	EEC	Japan	
		(Percent of world total)					
OILS AND FATS							
Animal oils and fats(411)	246.2	0.0	100.0	0.0	100.0	0.0	0.0
Fixed vegetable oils and fats(421/2)	24298.3	73.0	27.0	2.8	19.6	0.0	0.0
Processed animal and vegetable oils and fats(431)	932.9	18.7	81.3	0.3	76.1	0.0	0.0
CHEMICALS							
Organic chemicals(512)	7384.3	15.0	75.7	12.1	58.1	0.4	9.0
Inorganic chem., oxides and halogen salts(513/4)	25474.9	48.6	28.5	3.0	23.2	0.6	22.5
Dyeing, tanning and colouring materials(531)	714.7	1.2	98.8	0.0	88.1	5.2	0.0
Medicinal and pharmaceutical products(541)	42886.6	6.2	92.7	7.5	61.2	0.3	0.6
Plastics, cellulose and artificial resins(581)	37833.2	28.3	68.0	1.9	52.9	1.1	2.8
FERTILIZERS							
Nitrogenous fertilizers & related materials(5611)	4197.8	83.9	16.1	1.0	13.7	0.0	0.0
Phosphatic fertilizers and related materials(5612)	1025.9	97.5	2.5	0.0	1.4	0.0	0.0
Potassic fertilizers and related materials(5613)	170.5	0.0	100.0	0.0	82.1	0.0	0.0
PETROLEUM							
Petroleum, crude or partly refined(331)	489870.5	100.0	0.0	0.0	0.0	0.0	0.0
Petroleum products(332)	74792.7	79.2	19.5	1.1	18.1	0.2	1.3
RUBBER							
Crude rubber, synthetic and reclaimed(231)	602.4	21.0	77.5	0.5	77.1	0.0	0.0
Rubber materials, e.g.sheets, threads, piping(621)	2045.3	8.2	65.8	9.7	44.5	9.9	12.5
Articles of rubber, e.g. tyres, tubes(629)	29565.5	12.9	83.7	1.1	32.7	41.4	2.6
WOOD AND FURNITURE							
Wood, shaped or simply worked(243)	16097.4	4.6	47.6	1.2	2.0	0.4	47.8
Pulp paper, including waste(251)	3164.2	6.0	94.0	53.1	7.2	0.0	0.0
Veneers, plywood, improved wood(631)	9652.1	49.8	23.3	1.1	6.3	1.3	5.5
Wood manufactures(632)	12143.6	42.6	51.2	2.1	7.2	0.3	2.9
Paper and paperboard(641)	23109.4	18.6	78.5	2.0	10.0	11.4	2.3
Articles of pulp, paper or paperboard(642)	12413.1	32.6	64.2	2.4	23.4	2.7	1.7
Furniture(821)	33884.7	17.5	78.2	17.6	50.2	1.6	1.6
TEXTILES AND CLOTHING							
Wool and other animal hair(262)	624.4	87.8	12.2	0.0	12.2	0.0	0.0
Cotton(263)	2986.4	99.7	0.3	0.0	0.3	0.0	0.0
Jute(264)	150.3	100.0	0.0	0.0	0.0	0.0	0.0
Vegetable fibres, flax and hemp(265)	44.0	50.2	43.8	0.0	6.4	0.0	0.0
Synthetic and regenerated fibres(266)	319.4	0.0	92.8	6.7	71.0	15.0	7.2
Textile yarn and thread(651)	20730.8	9.2	68.4	2.0	54.0	1.2	8.2
Woven cotton fabrics(652)	4437.0	78.1	6.9	0.1	4.9	1.0	14.9
Woven textile fabrics(653)	29886.4	28.4	54.2	1.1	27.4	18.9	8.7
Made-up articles chiefly of textiles(656)	5855.1	46.8	41.9	3.8	16.6	0.7	5.5
Travel bags, handbags, etc.(831)	2534.1	16.1	20.3	3.1	12.3	0.5	3.2
Clothing, excluding leather(841 less 8413)	53875.2	41.4	29.4	0.9	21.3	0.7	2.1
Calf leather(6113)	76.3	100.0	0.0	0.0	0.0	0.0	0.0
LEATHER AND PRODUCTS							
Other leather, including artificial(611 less 6113)	128.2	9.0	91.0	0.0	91.0	0.0	0.0
Leather manufactures(612)	348.1	10.4	77.3	0.7	74.3	1.8	1.0
Apparel and accessories of leather(8413)	449.2	50.3	41.1	0.6	29.5	1.7	0.0
Footwear(85)	11579.6	27.3	36.8	0.2	31.7	0.1	12.0
BUILDING MATERIALS AND GLASS							
Lime, cement, fabricated building materials(661)	6408.2	60.7	39.2	0.0	29.8	0.1	0.1
Construction and refractory materials of clay(662)	9386.0	8.5	90.9	0.9	43.8	4.5	0.3
Glass(654)	8642.2	17.1	75.4	2.7	65.4	3.0	7.2
Glassware and pottery(665/6)	14839.3	28.8	63.2	2.7	55.3	2.1	5.7

Table A-20 (Continued)

Description of traded goods (SITC)	World total (in 1000 current US $)	Developing countries	Developed market economies				Centrally planned economies
			Total	USA	EEC	Japan	
		(Percent of world total)					
IRON AND STEEL							
Iron ore and concentrates(281)	...	...	...	...	...	...	...
Iron and steel scrap(282)	265.7	99.5	0.5	0.0	0.5	0.0	0.0
Pig iron and sponge(671)	3435.3	0.5	99.5	0.0	2.7	0.0	0.0
Ingots and other primary forms(672)	34485.7	60.1	39.2	0.0	7.0	0.4	0.1
Bars, rods, shapes, sections(673)	15900.3	18.8	43.0	0.0	30.7	1.7	22.8
Universals, plates and sheets(674)	16971.9	10.2	81.0	0.0	38.0	34.7	8.7
Hoop and strip(675)	245.1	1.1	81.3	0.0	64.5	14.5	17.7
Iron and steel wire(677)	3453.3	6.7	66.3	0.2	60.8	4.7	26.9
Tubes, pipes and fittings(678)	31595.4	7.5	79.7	2.0	67.7	5.8	7.8
Unworked castings and forgings(679)	...	...	...	...	...	...	...
NON-FERROUS METALS							
Non-ferrous ore and concentrates(283)	10.4	100.0	0.0	0.0	0.0	0.0	0.0
Copper, blister, refined, alloys(6821)	67.9	0.0	100.0	0.0	98.7	0.0	0.0
Copper bars, shapes, sections, wire, etc.(6822)	2891.7	39.9	60.1	1.9	27.7	1.5	0.0
Aluminium, unwrought or worked(684)	22024.4	34.9	63.0	0.3	14.2	0.4	2.0
Lead, unwrought or worked(685)	95.1	62.9	37.1	0.0	16.4	0.0	0.0
Zinc, unwrought or worked(686)	727.8	0.0	53.5	0.0	53.5	0.0	46.5
Tin and alloys, unwrought or worked(687)	121.5	0.1	99.9	0.0	64.5	0.0	0.0
Wire products, e.g. cables, ropes(693)	2363.9	10.1	86.1	5.2	65.9	12.0	2.9
SELECTED CAPITAL GOODS							
Hand tools used in agriculture(6951)	170.9	33.8	38.9	0.0	4.9	0.7	27.3
Tools for use in hand or machine(6952)	8437.4	5.9	89.9	20.4	52.7	4.7	2.1
Power generating machinery, non-electric(711)	29126.8	0.5	99.4	1.6	96.0	0.7	0.1
Agricultural machinery(7121/2)	1900.3	7.5	92.5	61.4	28.1	1.4	0.0
Dairy equipment(7123)	68.9	0.0	100.0	0.0	57.2	0.0	0.0
Tractors(7125)	2249.2	1.3	91.2	0.0	69.2	10.7	7.6
Office machines(714)	3092.0	5.8	89.6	17.5	37.2	26.9	3.1
Metal working machinery(715)	2839.1	4.7	87.9	0.3	82.4	2.9	2.6
Textile and leather machinery(717)	6954.9	5.9	79.7	1.8	35.9	14.3	12.1
Machines for paper, pulp and paper articles(7181)	208.8	0.0	100.0	36.6	51.1	1.7	0.0
Industrial food-processing machinery(7183)	1972.5	11.3	81.9	9.2	56.7	0.0	6.8
Machine tools for working minerals,wood,etc.(7195)	3155.6	15.4	83.3	2.2	72.1	3.0	0.0
Electrical power machinery and switchgear(722)	38504.8	3.2	94.7	4.7	58.9	24.3	1.3
MAJOR CONSUMER DURABLES							
Commercial road vehicles(732 less 7321)	96382.3	7.7	90.7	10.6	48.9	22.4	0.4
Passenger motor cars(7321)	1354.4	23.0	77.0	0.0	5.8	71.2	0.0
Television and radio sets(7241/2)	6560.7	36.4	63.2	1.0	4.2	57.9	0.0
Domestic electrical equipment(725)	9920.5	17.6	71.1	7.0	40.6	15.0	4.2
TOTAL OF ABOVE	1373350	53.7	40.6	2.7	24.1	5.3	3.0
TOTAL OF ALL MERCHANDISE (SITC 0 to 9)	2593170	36.8	56.3	12.6	28.2	6.6	4.9

Source: Statistics and Survey Unit, UNIDO.Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

Note: Percentages may not add to 100.0 due to the fact that countries report trade to/from "unspecified areas". Selection of products shown in this table was based on the definition of the manufacturing sector used for production statistics (i.e. the ISIC) and the associated raw material supplies. Thus, not all products are regarded as manufactures according to the conventional definitions of manufactured trade (e.g. SITC 5 to 8 less 68).

Table A-21: Destination of exports by industry, 1985

Description of traded goods (SITC)	World total (in 1000 current US $)	Developing countries	Developed market economies				Centrally planned economies
			Total	USA	EEC	Japan	
		(Percent of world total)					
OILS AND FATS							
Animal oils and fats(411)							
Fixed vegetable oils and fats(421/2)	400.4	100.0	0.0	0.0	0.0	0.0	0.0
Processed animal and vegetable oils and fats(431)	...	...	...	...	...	...	...
CHEMICALS							
Organic chemicals(512)	...	...	...	...	...	...	...
Inorganic chem., oxides and halogen salts(513/4)	4181.2	100.0	0.0	0.0	0.0	0.0	0.0
Dyeing, tanning and colouring materials(531)	14.3	100.0	0.0	0.0	0.0	0.0	0.0
Medicinal and pharmaceutical products(541)	36339.5	100.0	0.0	0.0	0.0	0.0	0.0
Plastics, cellulose and artificial resins(581)	2540.1	100.0	0.0	0.0	0.0	0.0	0.0
FERTILIZERS							
Nitrogenous fertilizers & related materials(5811)	77605.7	93.3	6.2	0.0	6.2	0.0	0.0
Phosphatic fertilizers and related materials(5812)	149.7	100.0	0.0	0.0	0.0	0.0	0.0
Potassic fertilizers and related materials(5813)	...	...	...	...	...	...	...
PETROLEUM							
Petroleum, crude or partly refined(331)							
Petroleum products(332)	20.3	100.0	0.0	0.0	0.0	0.0	0.0
RUBBER							
Crude rubber, synthetic and reclaimed(231)	19.8	100.0	0.0	0.0	0.0	0.0	0.0
Rubber materials, e.g.sheets, threads, piping(621)	7.1	100.0	0.0	0.0	0.0	0.0	0.0
Articles of rubber, e.g. tyres, tubes(629)	3.1	100.0	0.0	0.0	0.0	0.0	0.0
WOOD AND FURNITURE							
Wood, shaped or simply worked(243)	660.9	100.0	0.0	0.0	0.0	0.0	0.0
Pulp paper, including waste(251)	3.3	100.0	0.0	0.0	0.0	0.0	0.0
Veneers, plywood, improved wood(631)	73.5	100.0	0.0	0.0	0.0	0.0	0.0
Wood manufactures(632)	21747.8	100.0	0.0	0.0	0.0	0.0	0.0
Paper and paperboard(641)	520.9	100.0	0.0	0.0	0.0	0.0	0.0
Articles of pulp, paper or paperboard(642)	9229.9	100.0	0.0	0.0	0.0	0.0	0.0
Furniture(821)	1763.4	99.0	1.0	0.5	0.1	0.0	0.0
TEXTILES AND CLOTHING							
Wool and other animal hair(262)	17.8	100.0	0.0	0.0	0.0	0.0	0.0
Cotton(263)	1.7	100.0	0.0	0.0	0.0	0.0	0.0
Jute(264)	...	...	...	...	...	...	...
Vegetable fibres, flax and hemp(265)	...	...	...	...	...	...	...
Synthetic and regenerated fibres(266)	...	...	...	...	...	...	...
Textile yarn and thread(651)	6403.9	100.0	0.0	0.0	0.0	0.0	0.0
Woven cotton fabrics(652)	147.7	100.0	0.0	0.0	0.0	0.0	0.0
Woven textile fabrics(653)	18255.9	100.0	0.0	0.0	0.0	0.0	0.0
Made-up articles chiefly of textiles(656)	179.8	100.0	0.0	0.0	0.0	0.0	0.0
Travel bags, handbags, etc.(831)	223.4	100.0	0.0	0.0	0.0	0.0	0.0
Clothing, excluding leather(841 less 8413)	29343.5	100.0	0.0	0.0	0.0	0.0	0.0
Calf leather(6113)	...	...	...	...	...	...	...
LEATHER AND PRODUCTS							
Other leather, including artificial(611 less 6113)	69.4	100.0	0.0	0.0	0.0	0.0	0.0
Leather manufactures(612)	268.8	100.0	0.0	0.0	0.0	0.0	0.0
Apparel and accessories of leather(8413)							
Footwear(85)	1666.0	100.0	0.0	0.0	0.0	0.0	0.0
BUILDING MAIERIALS AND GLASS							
Lime, cement, fabricated building materials(661)	24793.2	100.0	0.0	0.0	0.0	0.0	0.0
Construction and refractory materials of clay(662)	1348.8	100.0	0.0	0.0	0.0	0.0	0.0
Glass(664)	655.6	100.0	0.0	0.0	0.0	0.0	0.0
Glassware and pottery(665/6)	122.2	99.8	0.2	0.0	0.2	0.0	0.0

Table A-21 (Continued)

Description of traded goods (SITC)	World total (in 1000 current US $)	Developing countries	Developed market economies				Centrally planned economies
			Total	USA	EEC	Japan	
		(Percent of world total)					
IRON AND STEEL							
Iron ore and concentrates(281)	171.4	39.9	60.1	0.0	0.0	59.9	0.0
Iron and steel scrap(282)	...	...	...	...	...	...	...
Pig iron and sponge(671)	...	...	...	...	...	...	...
Ingots and other primary forms(672)	244.0	100.0	0.0	0.0	0.0	0.0	0.0
Bars, rods, shapes, sections(673)	105.6	100.0	0.0	0.0	0.0	0.0	0.0
Universals, plates and sheets(674)	...	...	...	...	...	...	...
Hoop and strip(675)	13.0	100.0	0.0	0.0	0.0	0.0	0.0
Iron and steel wire(677)	241.8	100.0	0.0	0.0	0.0	0.0	0.0
Tubes, pipes and fittings(678)	...	...	...	...	...	...	...
Unworked castings and forgings(679)	...	...	...	...	...	...	...
NON-FERROUS METALS							
Non-ferrous ore and concentrates(283)	...	...	...	...	...	...	...
Copper, blister, refined, alloys(6821)	0.8	100.0	0.0	0.0	0.0	0.0	0.0
Copper bars, shapes, sections, wire, etc.(6822)	0.3	100.0	0.0	0.0	0.0	0.0	0.0
Aluminium, unwrought or worked(684)	77.5	100.0	0.0	0.0	0.0	0.0	0.0
Lead, unwrought or worked(685)	...	...	...	...	...	...	...
Zinc, unwrought or worked(686)	...	...	...	...	...	...	...
Tin and alloys, unwrought or worked(687)	285.8	100.0	0.0	0.0	0.0	0.0	0.0
Wire products, e.g. cables, ropes(693)							
SELECTED CAPITAL GOODS							
Hand tools used in agriculture(6951)	4.9	100.0	0.0	0.0	0.0	0.0	0.0
Tools for use in hand or machine(6952)	23.8	100.0	0.0	0.0	0.0	0.0	0.0
Power generating machinery, non-electric(711)	...	...	...	...	...	...	...
Agricultural machinery(7121/2)	...	...	...	...	...	...	...
Dairy equipment(7123)	...	...	...	...	...	...	...
Tractors(7125)	...	...	...	...	...	...	...
Office machines(714)	...	...	...	...	...	...	...
Metal working machinery(715)	1.2	100.0	0.0	0.0	0.0	0.0	0.0
Textile and leather machinery(717)	524.7	100.0	0.0	0.0	0.0	0.0	0.0
Machines for paper, pulp and paper articles(7181)	...	...	...	...	...	...	...
Industrial food-processing machinery(7183)	79.5	100.0	0.0	0.0	0.0	0.0	0.0
Machine tools for working minerals,wood,etc.(7195)	1.5	100.0	0.0	0.0	0.0	0.0	0.0
Electrical power machinery and switchgear(722)	478.8	100.0	0.0	0.0	0.0	0.0	0.0
MAJOR CONSUMER DURABLES							
Commercial road vehicles(732 less 7321)	1243.3	100.0	0.0	0.0	0.0	0.0	0.0
Passenger motor cars(7321)	...	...	...	...	...	...	...
Television and radio sets(7241/2)	...	...	...	...	...	...	...
Domestic electrical equipment(725)	1492.2	100.0	0.0	0.0	0.0	0.0	0.0
TOTAL OF ABOVE	243769	97.8	2.0	0.0	2.0	0.0	0.0
TOTAL OF ALL MERCHANDISE (SITC 0 to 9)	648990	83.4	8.8	0.0	3.7	2.3	6.4

Source: Statistics and Survey Unit, UNIDO.Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

Note: Percentages may not add to 100.0 due to the fact that countries report trade to/from "unspecified areas". Selection of products shown in this table was based on the definition of the manufacturing sector used for production statistics (i.e. the ISIC) and the associated raw material supplies. Thus, not all products are regarded as manufactures according to the conventional definitions of manufactured trade (e.g. SITC 5 to 8 less 68).

ANNEX B

MAIN RECOMMENDATIONS OF UNIDO STUDY ON THE JORDANIAN PACKAGING INDUSTRY, 1983

The recommendations are given below in the form of a detailed list with suggested priority treatments. When the various bodies have had time to analyse the points made, and the nature of the evidence on which they are based, it will be possible to build a programme of action based on those accepted, together with new proposals that will no doubt emerge from the deliberations.

Category	Recommendation	Priority
General		
1.	The analysis of the state of Jordanian products when offered for sale should be continued on a regular basis.	1.
2.	The technical staff operating in industry must be fully informed about the nature and application of the test equipment and test techniques at present available in RSS. A formal training method available at any time should be sought. This would probably best take the form of video training firms.	1.
3.	The RSS paper and packaging laboratory should be reinforced.	1.
4.	Serious consideration should be given to permitting the technical staff from industry to be present during the testing of their packaging materials and containers, and the elimination of the formal test report preparation as practiced at present.	1.
Corrugated Boxes		
5.	Every support should be given to helping the local supplier produce good quality corrugated boxes. It is a vital industry.	1.
6.	The equipment necessary for testing the materials and the boxes produced should be available to the manufacturer and to the users too.	1.
7.	The present level of printing quality on corrugated boxes must be improved.	1.
8.	The introduction of a joint venture company blending printing inks from concentrates locally should be considered as a means of bringing some much needed technical assistance in the field of printing.	3.
9.	The introduction of a box certification scheme should be considered.	3.
10.	The possible manufacture of the all-plastic corrugated containers should be considered.	3.

Category	Recommendation	Priority
Folding Cartons		
12.	Support should be given to the local company that recently made a large investment in excellent machinery for folding carton production.	1.
13.	The insistence on cast-coated board for pharmaceutical cartons should be discouraged throughout the Arab Region.	1.
14.	The growth of carton systems that require such specialized materials of construction that they are unlikely to ever be made in Jordan, (e.g., Tetrapak and Purepak) should be discouraged.	1.
15.	The quality and thickness of the carton board being used for detergent powederes by at least one manufacturer is inadequate. Standards for leakproofness for such containers should be introduced.	2.
16.	As the folding carton market is likely to be small for some time to come, the number of converters should be restricted to allow the quality to be built up.	2.
17.	Efforts should be made to promote the need for well-made cartons when medium or high speed cartooning machinery is being used.	3.
18.	A special study should be started on the creasing rule/ make-ready combination that are needed for good creasing under local conditions.	3.
19.	It is apparently in Jordan's interests to pack in plastics or glass whenever possible and this should be borne in mind when considering expansion in the use of specialized folding cartons.	3.
20.	Match carton production should be considered as a special case better done 'in-house'.	3.
21.	The number of companies making plastic containers should be reduced.	1.
22.	Standards are needed for the performance of plastic containers focussing on print adhesion and leak resistance.	1.
23.	The test equipment and test methods associated with plastics container packaging must be made available as soon as possible.	1.
24.	Ways must be tried of making local industry more aware of the benefits of scientific testing and a way found in whcih they can be actively involved in the application of these testing techniques.	1.

Category	Recommendation	Priority
25.	The use of self-adhesive labels on plastic containers should be encouraged.	1.
26.	A special study should be made to see if a standard range of plastic containers can be agreed on for the Arab Region, product by product, especially in the case of household products.	1.
27.	The growing practice whereby product manufacturers make their own packaging (bottles, pots, cartons, cans) should be discouraged.	1.
28.	In the centralized packaging laboratory there should be someone specializing in the interpretation of the regulations existing on other countries (e.g., USA and Germany) concerning permitted and non-permitted substances in food packaging materials.	1.
29.	The system in which the suppliers of raw maerials and containers are required to guarantee that the materials they offer do not contain harmful ingredients should be introduced as soon as possible.	1.
30.	A study should be made concerning the extent to which antistatic agents are added to resins being used for container manufacture in Jordan.	2.
31.	The chemical analysis section of the RSS should be skilled in the determination of monomer content in PVC and polystyro	3.
32.	The use of blown plastic containers as a form of milk packaging should be encouraged.	3.
33.	A special study should be made on the possible intorduction of PET bottles for the packaging of carborated soft drinks as an alternative to the can and as a means of introducing one litre and two litre containers to the market for family use.	3.
<u>Plastic Films and Laminates</u>		
34.	The diversity of types of laminates in use is very great and without a big market it is difficult to make them economically. The freedom to purchase laminates abroad is necessary because the properties needed are often very specific.	1.
35.	There is a real need for a central laboratory with a good understanding of the properties that can be expected from a given combination of materials. Test equipment for the materials and the filled packs will be essential.	1.

Category	Recommendation	Priority
36.	A special study should be made on the application of co-extruded films to the future needs of the Jordanian market and the possibility of the sterilizable pouch is not recommended as an alternative to the can.	2.
	Glass Containers	
38.	The use of disposable, light-weight, glass containers should replace the aluminium can and possibly the tinplate can as a beer container.	1.
39.	The varnishing of paper labels should be made mandatory, expect in the case of re-usable containers.	1.
40.	A special company for making closures should be considered as part of the glass container industry so as to offer a total service to customers.	1.
41.	The central packaging laboratory should begin work studying the application of glass containers to as many uses as possible for the Jordanian market.	3.
42.	The needs of the pharmaceutical industry should be investigated to see if a small separate company for glass containers would better serve its needs.	3.
43.	Technical help from the central laboratory should concentrate on the testing of filled containers rather than the technology of glass containers.	3.
44.	Consideration should be given to the very gradual standardization of brown as the colour for glass containers for beer, so that recovery as cullet will be simplified.	3.
45.	The sitting of skips for the collection of used glass containers should begin now.	3.
	Metal Cans	
46.	The staff of the metallurgical laboratory in RSS should be given special training in the testing of cans.	1.
47.	The present state of the food can industry should be surveyed by a specialist in can production.	1.
48.	Food can production should be limited to one specialist company created by the union of one of the specialist can makers in a joint venture with a long-estabished foreign manufacturer.	1.

Category	Recommendation	Priority
49.	The quality of the canned tomato paste on sale on Jordan should be the subject of an immediate enquiry by the body responsible for food hygiene.	1.
50.	A standard range of can sizes for food use should be established, preferably on an Arab Regional basis.	1.
51.	There should be rational standards for food cans.	2.
52.	A vigorous campaign should be instigated to reduce the number of dented cans being offered for sale.	2.
53.	The use of aluminium cans for beer and soft drinks should be discouraged.	3.
54.	Aerosol can testing equipment should be introduced into the central testing laboratory.	3.
55.	Wider use of tin-free steel and second quality plate in local can production should be encouraged as a means of saving foreign exchange.	3.
56.	The expertise necessary for the analysis of lead and tin content of canned foods should be developed.	3.
Wooden Boxes		
57.	The standard for wooden boxes for fruit and vegetable packaging at present specifies length, width and height. This should be reconsidered with a view to freeing the height requirement so as to make for more flexibility.	1.
58.	The future role of the corrugated box in export packaging of fruit and vegetables should be borne in mind when planning wooden capacity expansion.	3.
Woven Plastic Sacks		
59.	Test facilities for drop-testing filled sacks and the skill to use them need to be acquired at the central test laboratory.	1.
60.	National standards for flour sacks are required to simplify comparisons between local and imported sacks.	1.
61.	The outside purchase of flour sacks should be discouraged when the local product can be shown to be a fair match.	1.
62.	The system for placing large orders for delivery at agreed weekly or monthly rates should be encouraged so that the factory may plan its production efficiency.	1.

Category	Recommendation	Priority
63.	The local manufacturer should be given every support in expanding to meet a greater percentage of the high quantities that will be required when the newer flour mills come on stream.	2.
64.	The potential for manufacturing the one ton "big bag" should be investigated, at national and regional level.	3.
65.	The ruling that the plastic flour sacks should be used only once should be re-examined.	3.
	<u>The Disposal or Recovery of Used Packages</u>	
66.	The problem of litter should be regarded as a social and educational problem and not one to be solved by banning or restricting packaging materials or contaienrs of a certain type (with some possible exceptions such as rip-top cans).	1.
67.	Land fill would appear to be the best way of disposing of waste packaging materials in Jordan.	1.
68.	Direct incineration as a way of disposal of packaging waste can cost six times that of land fill and does not appear to have any advantages for Jordan.	1.
69.	The recovery of glass containers before they enter the domestic waste system should be implemented, although it must be realized that it will be many years before it becomes effective.	3.
70.	The use of biodegradable plastics is not a viable solution.	3.
71.	The recovery and re-use from industrial waste of plastic materials is in most cases already being done; a check could be made to see that it is not being overdone.	3.
72.	The recovery of plastic waste from domestic waste is not a viable operation.	-
73.	Any plastic recovery schemes concerned with keeping plastic waste separate from domestic waste should emphasize the need to keep the different kinds separate.	3.
74.	Collection of paper waste from industrial and commercial sources should be encouraged.	3.
75.	The recovery of waste paper from domestic sources should be regarded as impracticable.	-
76.	The production of waste-derived fuels from the paper, plastic and wood in domestic waste should be regarded as a real possibility, but work on the process in Jordan should be restricted to the need for such a process and the implications concerning the special design of furnaces needed. This is a regional investigation.	3.

Category	Recommendation	Priority
77.	When PET bottles are introduced, it should be a requirement that they are clearly marked as such as an aid to their recovery.	3.
78.	Work on the recovery of metal containers from domesic waste seems unlikely to be of value to Jordan over the next five years.	-

ANNEX C

LIST OF INDUSTRIAL PROJECTS IN CURRENT PLAN, 1986-1990

A: List of Projects included in the current Five-Year Plan, 1986-1990

1. Completion of the Amman International Fair

The project aims at mounting a permanent fair to exhibit Jordanian and foreign products. The government has acquired 475 dunums in Marj Al-Hamam for this purpose. Designs have already been completed and work began in 1985 on a temporary fair at the same location.

The fair will be completed in three stages:

a) Updating the feasibility study and doing the leveling works.
b) Constructing infrastructure (road, parking lots and general utilities), and building three showrooms and a permanent Jordanian exhibition wing.
c) Completing all six main showrooms and the remaining general utilities.

The cost of all three stages is estimated at JD 6 million to be disbursed over the Plan period as follows (JD '000):

	1986	1987	1988	1989	1990	TOTAL
General Budget	500	400	400	500	700	2500
Foreign Assistance	1000	400	600	700	800	3500
TOTAL	1500	800	1000	1200	1500	6000

2. The National Center for Standards and Measures

This project aims at establishing a central agency through special legislation to exercise quality control, establish policies and regulations, and set up and approve standards and measures as well as marks of excellence in respect of all goods and services. The agency will establish, consolidate and certify laboratories and research centers. It will approve and supervise quality control procedures and methods of analysis. In addition, the agency will train technical staff for these laboratories, and conduct research on standards, measures and the adoption of criteria, technical terms and codes.

The total cost of the project is estimated at JD 5.2 million to be disbursed as follows (JD '000):

	1986	1987	1988	1989	1990	TOTAL
General Budget	-	275	600	1000	1000	3375
Self-financing and Technical Assistance	175	225	400	500	500	1800
TOTAL	175	500	1000	1500	1200	5175

3. Industrial survey

Towards the end of the Plan period (1986-1990), the industrial survey conducted in 1985 will be updated. The project will aim at providing information and studies to help formulate economic and industrial policies for the fourth Five-Year Plan (1991-1995). The survey will be financed equally by the General Budget and technical assistance.

The cost of the project is estimated at JD 0.5 million to be disbursed as follows (JD '000):

	1986	1987	1988	1989	1990	TOTAL
General Budget	-	-	-	250	-	250
Technical Assistance	-	-	-	250	-	250
TOTAL	-	-	-	500	-	500

4. Industrial research and studies

This project aims at regular dissemination of information on investment opportunities in Jordan through conducting periodic sectoral and sub-sectoral studies for the benefit of existing industries and preparing fprefeasibility studies for possible new industrial projects. It also aims at participating in feaibility studies on the subjects of the Five-Year Plan (1986-1990) and other priority projects that might evolve during the Plan period.

The cost of the project is estimated at JD 1.25 million, of which about 20 per cent will be financed by the General Budget and the balance through technical assistance. Disbursement during the Plan period will be as follows (JD '000):

	1986	1987	1988	1989	1990	TOTAL
General Budget	50	50	50	50	50	250
Technical Assistance	200	200	200	200	200	1000
TOTAL	250	250	250	250	250	1250

5. Support of industrial development

This project aims at staff reorganization and qualification support in industry and industrial development, through providing information as well as basic and institutional services related to production, marketing and financing. The project also aims at helping in the transfer and upgrading of technology suited to the goals and projects of the Five-Year Plan and to industrial development.

The total cost of the project is estimated at JD 3 million to be disbursed during the Plan period as follows (JD '000):

	1986	1987	1988	1989	1990	TOTAL
General Budget	200	200	200	200	200	1000
Technical Assistance	400	400	400	400	400	2000
TOTAL	600	600	600	600	600	3000

6. Government projects

On the basis of a decision by the Cabinet Development Committee, the Prime Ministry entrusted the Industrial Estates Corporation with the task of organizing, planning and developing government owned lands east of the Amman region in order to establish the Lan Port project and the Industrial Zones project. A group of consultants were qualified to prepare the necessary studies for the two projects. There was no progress beyond that point, however, because a decision was not reached on the subject of land allocations. The Lan Project has been discussed in the section on the Transportation Sector. Following is a brief resume on the industrial zones project.

Industrial zones (1st stage)

Owing to the proliferation of industries in various parts of the Amman region, the high cost of extending services to these industries and the pollution they cause, an evident need has arisen for industrial zones large enough to accommodate the various industries and provide them with the necessary services. It is expected that a piece of land will be acquired for the project in 1986 and that studies, engineering designs and tender documents will be ready by the beginning of 1987.

The cost of the first stage will be JD 8 million to be disbursed as follows (JD '000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	200	800	1000	1000	5000	8000

Projects of the Arab Potash Company

Modification and production increase:

This project aims at upgrading efficiency and performance and increasing production beyond the design capacity of the plant by modifying the evaporation pans and the potash refinery.

The total cost of the project is estimated at JD 8.3 million, of which JD 5.2 million will be financed through foreign loans and the balance from the Arab Potash Company's own resources. Disbursement during the plan period is as follows (JD '000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	2500	600	-	-	-	3100
Loans	4200	1000	-	-	-	5200
TOTAL	6700	1600	-	-	-	8300

Potassium Sulphate

This project aims at producing 200 thousand tons of potassium sulphate annually, by using sulphuric acid or phosphogypsum.

The cost of the project is estimated at JD 61 million, of wich JD 55 million will be disbursed during the Plan period as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	-	-	1000	6450	9850	17300
Loans	30	20	3500	14300	19850	37700
TOTAL	30	20	4500	20750	28700	55000

Studies

This project aims at conducting and updating studies on by-product arising from the utilization of Dead Sea water. The total cost of the studies is estimated at JD 2 million to be financed from the Company's own resources and through foreign assistance and disbursed as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	-	-	1000	6450	9850	17300
Loans	30	20	3500	14300	19850	37700
TOTAL	30	20	4500	20750	28700	55000

Socium Carbonate (Soda ash)

This project, which will be implemented through coordination and co-operation among the Pension Fund, the Arab Mining Company, the Industrial Development Bank, the General Corporation for Social Security, and the Potash Arab Company, aims at producing sodium carbonite by using the well-known

Solvay process, from manufactured salt, a by-product of the extraction of potassium chloride at the plants of the Arab Potash Company. The estimated capacity of the project is 300 thousand tons annually. The project will be implemented after thorough marketing, financial analysis, and investment returns studies.

The total cost of the project is estimated at JD 77 million, of which JD 38.5 million will be disbursed during the Plan period, JD 23 million in loans and the balance through self-financing. Disbursement during the Plan period will be as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	-	-	-	7720	7680	15400
Loans	-	30	20	11580	11520	23150
TOTAL	-	30	20	19300	19200	38550

7. Jordan Chemical Fertilizer Company's Projects

Production increase at the two sulphuric acid units

This project aims at increasing the production of the two units by 800 tons daily. The project cost is estimated at JD 2.5 million. It is expected that implementation will take place in 1986 and 1987 and will commence after negotiations are completed with the company doing the designs. Disbursement will be as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	350	525	-	-	-	875
Loans	650	975	-	-	-	1625
TOTAL	1000	1500	-	-	-	2500

Expansion of fertilizer and aluminium floride storehouses

This project aims at increasing the storage capacity for diammonium phosphate (DAP) to 120 thousand tons and for aluminium floride to 6 thousand tons. The project is estimated at JD2.5 million. Disbursement will be as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	-	-	-	875	-	875
Loans	-	-	-	1625	-	1625
TOTAL	-	-	-	2500	-	2500

Modification of the cooling system of the phosphoric acid plant

This project aims at increasing the production capacity of the phosphoric acid plant to design capacity. The project cost is estimated at JD 3 million. Implementation is expected to take place during the period 1986-1988. Disbursement will be as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	350	350	350	-	-	1050
Loans	650	650	650	-	-	1950
TOTAL	1000	1000	1000	-	-	3000

8. Pension Fund Projects

Arab Engineering Industries Company

This project aims at establishing a foundry to meet the needs of domestic and neighbouring Arab markets. The project will form a nucleus for various engineering industries that would help establish an integrated engineering industrial base to provide the engineering industries with the necessary production inputs.

The production capacity of this project is estimted at 16,700 tons annually. The project will be implemented in two interconnected stages. In the first stage, production capacity will be at about 10 thousand tons, going up to 16,700 tons annually in the second stage through adding some equipment at little cost to increase the capacity of the production lines. Implementation is expected during the period 1986-1989.

The cost of the first stage is estimated at JD 19 million, of which JD 289,000 was spent in 1985. The balance will be disbursed during the Plan period as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	3211	3500	1500	1000	-	9211
Loans	3500	2200	2000	2000	-	9700
TOTAL	6711	5700	3500	3000	-	18911

Houshold and irrigation water pumps

This project aims at manufacturing water pumps, for irrigation and for hot and cold household water, at an annual production capacity of more than 15 thousand pumps. The project is an integrated part of the Foundry project, since most of the parts are metal alloys. The economic and technical feasibility study, already under way, is expected to be completed by the end of 1986. The project will be located in the vicinity of the foundry.

The total cost is estimated at JD 11 million to be disbursed as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	56	1125	2250	2250	-	5681
Loans	-	1125	2250	2250	-	5625
TOTAL	56	2250	4500	4500	-	11306

Mechanical workshops

This project aims at establishing a specialized high-technology mechanical workshop to produce spare parts, molds of all types, and hand tools to meet demand in Jordan and the neighboring countries for car parts and spare parts by special order as well as the needs of the plastic industries. The project is an integral part of the Foundry.

A feasibility study has been completed.

The total cost is estimated at JD 3 million to be disbursed as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	40	740	740	-	-	1520
Loans	-	740	740	-	-	1480
TOTAL	40	1480	1480	-	-	3000

9. Phosphate projects

Shidiya phosphate project

This project aims at mining phosphate at Shidiya, 70 KM south of Ma'an, to produce 3 million tons of all grades annually during the first stage of proudction, which will start in the second half of 1991. Thereafter, production will be increased gradually in medium range stages to reach 9 million tons early in the coming decade. The project also aims at using large quantities of extracted rock phosphate in manufacturing concentrated phosphoric acid (54 per cent) and solid fertilizers, such as monoammonium phosphate (MAP), and diammonium phosphate (DAP).

The total cost of the project is estimated at JD 404 million, including the mine, the fertilizer complex, transportation vehicles and the port.

Owing to current economic conditions, which will most probably continue throughout the decade, and to their impact on the prices of acids and fertilizers, it has been decided, for the time being, to postpone the implementation of the additional fertilizer complexes.

As for the expansion of phosphate storage and handling facilities at the Port of Aqaba, work will not start until the beginning of the coming decade, mainly because existing facilities are adequate to handle current production plus anticipated production by the Shidiya mines.

For marketing, economic and financial considerations, the executive committee has decided on the early production programme at Shidiya at a cost of JD 15.6 million (which is part of the mine cost). By mid-1988, the programme will produce 0.5 million tons annually, to be gradually increased to 3 million tons annually in 1991.

Disbursement during the Plan period will be as follows (JD'000):

		1986	1987	1988	1989	1990	TOTAL
A)	Early Production						
	Self Financing	380	1052	1574	3654	-	6660
	Loans	1191	1220	1406	5197	-	9014
	TOTAL (A)	1571	2272	2980	8851	-	15674
B)	Comprehensive Production Plan						
	Self Financing	-	-	5467	12687	17803	35957
	Loans	-	-	4880	18047	22043	44970
	TOTAL (B)	-	-	10347	30734	39846	80927
	TOTAL (A+B)	1571	2272	13327	39585	39846	96601

10. Jordan Phosphate Mines Company projects

Second stage of Ruseifa Mines renewal

This project aims at preparing a feasibility study on three methods of low-grade phosphate processing. In light of the study and of the positive results shown by any of the three methods, the Company will implement the project at an estimated production capacity of 350 thousand tons annually.

The total cost of the project is estimated at JD 3.2 million, and implementation is expected to take 18-24 months. Disbursement during the Plan period will be as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing and Loans	1300	1900	-	-	-	3200

Two phosphate cake processing units at Al-Hassa and Wadi Al-Abiad mines

This project aims at producing soft wet phosphate at about 120 thousand tons annually at Wadi Al-Abiad and about 200 thousand tons annually at Al-Hassa mines. This phosphate is to be mixed with soft dry phosphate dust.

The total cost of the project is estimated at JD 4.1 million, and implementation is expected to take 18-24 months.

	1986	1987	1988	1989	1990	TOTAL
Self Financing and Loans	1200	1000	900	1000	-	4100

Removal of Overburden and Increase of Production at Al-Hassa and Wadi Al-Abiad Mines

This project aims at improving the methods of excavating and removing the overburden by using the three draglines, two at Wadi Al-Abiad and one at Al-Hassa mines.

The total cost of the project is estimated at JD 10.3 million, including the purchase of the draglines, explosions, excavators and electric accessories.

Disbursement will be as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing and Loans	6000	-	-	-	4300	10300

Improving production efficiency of mine equipment

This project aims at raising the productive efficiency of mine equipment to a level equal to or exceeding design capacity, through modification or addition. It is expected that production will increase as a result by 0.5 million tons annually.

The cost of the project is estimated at JD 1.0 million to be disbursed as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing and Loans	350	650	-	-	-	1000

11. Veterinary drugs and appliances

The Arab Company for Drug Industries and Medical Appliances (ACDIMA) has done a feasibility study on this project, which is to be established in Jordan. The project aims at meeting market needs of Jordan, Iraq, Saudi Arabia, Syria, Kuwait, Qatar, U.A.E., Oman and North Yemen for commonly used veterinary drugs in various pharmaceutical forms.

Ultimate production capacity will be 10,614 tons annually to be gradually reached during the first four years of production. First-Year production will be 25 per cent of design capacity.

The total cost of the project is estimated at JD 9.6 million to be disbursed as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Self Financing	1000	1000	1500	-	-	3500
Loans	1450	1500	3150	-	-	6100

12. Other private sector investments in the industrial sector

The private sector has established a range of successful small and medium-scale industries due to the favourable investment climate provided by the government. Projects earmarked for implementation by the private sector include: pharmaceuticals and veterinary drugs, foods, ready-made garments, prefabricated building and decorative materials, electrical applicanes, metal furniture and heating appliances, solar heaters, medical applicances, children's toys, plastics, textiles, printing, metal forming, other building materials, paints, packing and packaging, insectisides, and a range of intermediate commodities for existing and planned industries. Other industries are expected to be established in light of domestic demand and the financing capabilities of the private sector.

Private sector investments in existing large and medium-scale industries and handicraft establishments, together with new industries, are estimated at JD 88 million distributed as follows (JD'000):

	1986	1987	1988	1989	1990	TOTAL
Private Sector	12000	15225	17450	18075	25150	87900

B. List of projects under consideration or study

Title of project	Total investment (JD '000)		Annual gross production	New Employees
Food industries				
Dairy products	1,500	tons	1,500	50
Fruits & vegetables	1,600	"	3,000	72
Sugar products	480	"	230	38
Animal feeds	30	"	10,000	10
Carbonated drinks	1,300	"	17,000	100
Textiles industries				
Acrylic & polyester spinning	45	tons	165	15
Gauze & grip bandage (cotton yarn)	10	"	5	2
Chemical industries				
Blood derivates, enzymes, etc.	202	units	110,000	25
Bioshofite from the Dead Sea	46.5	tons	3,000	15
Veterinary drugs	9,600	tons	10,600	
Cream & liquid detergents (medical)	60	units	150,000	8
Brake oil	170	litres	250,000	12
Asphaltic rolls	125	tons	700	13
Rubber mops (million)	53.4	units	4.3 (mill.)	25
Plastic ware for medical use	100	150,000 JD		14
Plastic pieces for furniture & windows	15	pieces	20 (mill.)	4
Plastic lighters	273	units	7.2 (mill.)	22
Polystyrene wear boxes	674	tons	30	644
Sulphate	5,500	"	200,000	
Up-dating studies on by-product (potash)	2,000			
Sodium carbonate (soda ash)	77,000	"	300,000	
Sulphuric acid production increase	2,500	"	800	
Storage capacity increase of diammonium phosphate & aluminium fluoride	2,500			
Increase of phosthoric acid & cooling system	3,000			

Title of project	Total investment (JD '000)	Annual gross production		New Employees
Concentrated phosphoric acid, monoammonium phosphate and diammonium phosphate	404,000 (postponed for the time being)			
Bromine production	8,000	tons	250,000	
Magnesium & refactory bricks	14,000	"	5,000	
Building materials industries				
Tiles & bricks	50	m^2	70,000 (tiles)	23
		mill. pieces	1 (bricks) 15,000 (street stones)	
Granite & similar decorative materials	20	tons	170	

Source: Ministry of Industry and Trade - lists of licensed industries and direct contacts with the investors.

C. List of projects under implementation

Title of project	Starting year of implementation	Expected year of completion	Total investment costs JD	Annual: Gross production	Annual: Value of exports	Annual: Imports demand in quantity	Annual: New employees
Food Industries							
Dairy products, yogurt, UHT milk, ice cream, goats, cows & sheeps cheese	1985	1987	500,000	600 tonnes	--	183 tonnes	7
Meat & meat products, luncheon chicken meat & frozen chicken	1986	1987	1,960,000	2,410 tonnes	783,250	--	120
Bakery products - pastries and bread	1985	1987	600,000	680 tonnes	--	--	32
Other food products, ready-to-eat meals	1986	1987	50,000	500 tonnes	150,000	300 tonnes	16
Fruits and vegetables - frozen vegetables and pickles	1986	1987	100,000	1,130 tonnes	--	...	46
Sugar products - candy, chewing gum and halva	1986	1987	325,000	770 tonnes	35,000	770 tonnes	57
Cabornated drinks	1986	1987	200,000	9,000 tonnes	--	900 tonnes	20
Fruit juice concentrates	1986	1988	1,500,000	46,000 tonnes	150,000	--	123
Textile industries							
Curtain strips	1985	1986	20,000	21 tonnes		21 tonnes of cotton and polyester yarn	10
School uniform fabrics, curtain stips and canvas	1985	1987	150,000	35 tonnes	50,000	27 tonnes yarn	8
Dying, printing and finishing of woven fabrics	1986	1987	150,000	400 tonnes	1,500,000 reexports	1,000,000 metres	8
Pullovers and underwear	1986	1987	350,000	80 tonnes	100,000	60-100 tonnes cotton and acrylic yarn	30
Socks	1986	1987	...	30 tonnes	75,000	30 tonnes man-made yarn	10

.../

List of projects under implementation (cont.)

Title of project	Starting year of implementation	Expected year of completion	Total investment costs JD	Annual: Gross production	Annual: Value of exports	Annual: Imports demand in quantity	Annual: New employees
Chemical industries							
Sulphonic acid	1983	1986		12,000 tonnes			
Amides	1983	1986	4,000,000	2,000 tonnes		772,800	30
Loral ethyl sulphate	1983	1986		8,000 tonnes			
Silicate	1983	1986		15,000 tonnes			
Wool and wall pastes	1985	1986	20,000	6,000 tonnes	12,000	91,000	12
Mixed fertilizers	1984	1987	225,000	7,560 tonnes			18
Varnishes and paints for shoes	1986	1987	50,000	750,000 units	56,250	64,190	12
Shoes and tiles polishing materials	1985	1986	350,000	160,000 tonnes			9
Shoes polishing materials	1986	1987	30,000	155 tonnes	5,000	24,000	5
Car lacquers, pastes and thinners	1984	1987	160,000	343,000 JD	70%	245,300	14
Salts, liquids and creams extraction from the Dead Sea	1987	...	450,000	130 tonnes			8
Eye drops (expansion)	1986	1987	1,750,000	12 million bottles			
Soap factory (expansion) - local soap	1985	1987	35,000	300 tonnes		49,900	6
Different cleaning products	1985	1987	185,000	398,000 JD		194,400	43
Glues and silicon sealant	1986	1987	50,000	60,600 lit. 500,000 tubes	350,000	253,400	5
Antifreeze and glues	1986	1987	160,000	1,262,000 JD		107,500	21
Tyres	1985	1987	700,000	20,000 tyres		300,000	12
Polysterene boxes	1985	1986	350,000	2 million boxes		262,500	18
Rubber rings	1986	1986	30,000	362,000 pieces	20,000	10,950	5

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List of projects under implementation (cont.)

Title of project	Starting year of implementation	Expected year of completion	Total investment costs JD	Annual: Gross production	Annual: Value of exports	Annual: Imports demand in quantity	Annual: New employees
Plastic heels	1986	1986	150,000	216,00 pairs		13,000	23
Plastic heels	1986	1987	130,000	500,000 pairs	60,000	71,000	71
Plastic rugs	1985	1986	75,000	60,000 pieces		79,000	26
Plastic tubing	1984	1986	50,000	500 tonnes	87,000	79,200	23
Plastic tubing	1986	1987	235,000	634 tonnes		183,800	37
Plastic handles and wheels	1985	1986	20,000	37,000 JD		13,950	7
Plastic handles and belts	1986	1986	32,000	70 tonnes		23,100	10
Plastic furniture	1984	1987	140,000	408,000 JD		300,000	19
Plastic houses	1985	1986	1,800,000	6,000 tonnes	1,314,300	1,557,850	47
Plastic doors and windows	1985	1986	15,000	135,000 m^3		120,000	13
Plastic rolls and bags	1984	1986	100,000	107,500 JD		60,000	8
Matresses	1984	1986	22,800	1,160 tonnes	311,900	589,130	20
Car mats and decoration pieces	1985	1986	35,000	218,400 pieces		20,000	6
Plastic threads for agricultural use	1984	1986	30,000	120 tonnes	40,000	50,160	14
Building materials industries							
Granite production	1986	1987	100.000	30,000 m^2	50,000	--	8
Sand glass and light stone production	1986	1987	500,000	50,000 tonnes	1,700,00	100 tonnes of citric acid	88

Source: Ministry of Industry and Trade - List of licensed projects and direct contacts with the investors.

D: List of projects under consideration or study

Title of the project	Total investment cost JD thousand	Annual gross production in quantity	New employees
Food industries			
Dairy products	1,500	1,500 tonnes	50
Fruits and vegetables	1,600	3,000 tonnes	72
Sugar products	480	230 tonnes	38
Animal feeds	30	10,000 tonnes	10
Carbonated drinks	1,300	17,000 tonnes	100
Textiles industries			
Acrylic and polyester spinning	45	165 tonnes	15
Gauze and grip bandage	10	5 tonnes of cotton yarns	2
Chemical industries			
Blood derivates, enzymes, etc.	202	110,000 units	25
Bioshofite from the Dead Sea	46.5	3,000 tonnes	15
Veterinary drugs	9,600	10,600 tonnes	
Cream and liquid detergents (medical)	60	150,000 units	8
Brake oil	170	250,000 litres	12
Asphaltic rolls	125	700 tonnes	13
Rubber mops	53.4	4.3 million units	25
Plastic ware for medical use	100	150,000 JD	14
Plastic pieces for furniture and windows	15	20 million pieces	4
Plastic lighters	273	7.2 million units	22

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List of projects under consideration of study (continued)

Title of the project	Total investment cost JD thousand	Annual gross production in quantity	New employees
Polyestyrene wear box tonnes	674	30	644
Sulphate	5,500	200,000 tonnes	
Updating studies on by-products (potash)	2,000		
Sodium carbonate (soda ash)	77,000	300,000 tonnes	
Sulphuric acid production increase	2,500	800 tonnes	
Storage capacity increase of diammonium phosphate & aluminium flouride	2,500		
Increase of phosphoric acid and cooling system	3,000		
Concentrated phosphoric acid, monoammonium phosphate and diammonium phosphate	404,000	(postponed for the time being)	
Bromine production	8,000	250,000 tonnes	
Magnesium & refractory bricks	14,000	5,000 tonnes	
Building materials industries			
Tiles and bricks	50	70,000 m_2 tiles 1 million bricks 15,000 street stones	23
Granite & similar decorative materials	20	170 tonnes	

Source: Ministry of Industry and Trade - Lists of licensed industries and direct contacts with the investors.

ANNEX D

TECHNICAL NOTE ON SOURCES OF INDUSTRIAL GROWTH ESTIMATES

A more detailed picture of the pattern of industrial growth in Jordan may be obtained by attempting to estimate "sources" of industrial expansion in accordance with the method first presented by Chenery ("Pattern of Industrial Growth", American Economic Review, 1960) and developed by Lewis and Soligo ("Growth and Structural Change in Pakistan's Manufacturing Sector", Pakistan Development Review, 1965) and Ahmad ("Import Substitution and Structural Change in Indian Manufacturing Industry, 1950-1960", Journal of Development Studies, 1968). This method separates changes in domestic production of a commodity according to the use for the satisfaction of which this increased production is deployed; for satisfying increased domestic demand, an increase in exports or an increase in the substitution of imports by domestic supply. This separation of increase of domestic output by its "source" is made possible by the application of the following formula:

$$\Delta MVA = (\Delta MVA + \Delta M - \Delta X)\frac{MVA_1}{MVA_1 + M_1} + \Delta X \frac{MVA_1}{MVA_1 + M_1} + MVA_2 - \frac{MVA_1}{MVA_1 + M_1}(MVA_2 + M_2)$$

ΔMVA = Change in manufactured value added
ΔM = Change in imports
ΔX = Change in exports
M = Imports
X = Exports
Total supply = MVA + imports

Note: Subscripts stand for the respective periods.

Table D-1: Source of growth in Jordanian manufacturing value added, 1974-1985
(JD million in current prices)

	Exports 1	Exports 2	Imports 1	Imports 2	MVA 1	MVA 2	Change in domestic demand (1)	Change in exports (2)	Import substitution (3)	(1) + (2) + (3)
Total manufacturing	31.60	323.74	346.50	1,637.20	89.04	602.53	296.20	59.72	144.65	500.57
Food manufacturing	3.15	37.24	81.68	261.03	17.46	41.01	28.62	6.00	-12.17	22.45
Beverages	0.11	0.52	0.93	3.63	1.92	24.20	16.39	0.28	5.47	22.13
Tobacco manufactures	2.21	4.36	0.19	3.80	6.22	77.51	66.32	2.09	-1.40	67.01
Textiles	3.55	25.44	27.05	72.62	3.56	11.20	2.82	2.55	1.45	6.81
Wearing apparel	1.22	29.37	6.71	52.84	2.53	12.84	7.08	7.71	-5.14	9.64
Leather & fur products	0.05	0.30	0.34	2.81	0.75	1.79	2.17	0.17	-1.38	0.97
Footwear	0.14	1.89	0.56	10.63	0.55	11.06	9.19	0.87	0.31	10.37
Wood & cork products	0.03	22.48	6.53	37.76	0.23	1.09	0.33	0.76	-0.23	0.86
Furniture & fixtures	0.03	1.44	0.48	25.01	4.02	21.58	36.29	1.26	-20.04	17.51
Paper & paper products	1.35	9.75	12.58	35.75	1.04	14.96	1.98	0.64	11.09	13.71
Printing & publishing	0.02	0.90	2.07	9.94	1.70	10.04	6.89	0.40	1.03	8.32
Industrial chemicals	0.26	85.18	9.86	106.70	6.46	52.04	22.55	33.61	-10.79	45.37
Petroleum refineries	0.20	0.02	4.00	71.69	14.94	94.31	115.83	-0.14	-36.63	79.05
Rubber products	0.11	0.04	6.80	31.88	0.28	0.56	1.00	0.00	-0.72	0.27
Plastic products nec	0.36	11.95	2.57	13.15	3.25	18.12	7.34	6.47	0.66	14.47
Glass & glass products	0.05	0.71	3.48	21.28	0.21	2.12	1.08	0.04	0.79	1.90
Other non-metallic minerals	12.81	26.00	2.65	15.04	12.84	131.05	76.09	10.93	9.95	96.97
Iron & steel	0.02	0.62	30.97	108.09	6.93	18.07	16.02	0.11	-5.00	11.13
Metal prods. excl. machinery	0.27	12.93	15.24	170.49	0.00	47.83	0.00	0.00	47.83	47.83
Non-electrical machinery	0.27	3.75	27.82	123.98	0.05	0.00	0.17	0.01	-0.22	-0.05
Electrical machinery	1.62	1.27	20.46	108.71	2.11	2.26	7.99	-0.03	-8.11	-0.15
Transport equipment	0.00	1.47	53.66	155.60	1.09	1.84	2.02	0.03	-1.29	0.75
Other manufactures	0.10	1.20	3.26	37.52	0.93	7.04	8.67	0.24	-2.85	6.07

Source: UNIDO, Regional and Country Studies Branch.

ANNEX E

EXTERNALLY FINANCED TECHNICAL ASSISTANCE PROJECTS

Table E-1: Externally financed technical assistance projects and activities in the Jordanian industrial sector, 1986
(in $ '000)

Project/Activity (title and number)	Source of assistance	Project duration	Total assistance to project	Disbursement in 1986 or following year	Nature of assistance
TF/JOR/82/001 - Solar Water Heater for Industrial Application	UNIDO/Gov. of Italy	1983-1986	265	--	Providing various technical equipment in addition to short-term consultancy, and training to the Royal Scientific Society.
SI/JOR/86/005 - Industrial Survey of Jordan	UNIDO (SIS)	1986	74	74	Providing short-term consultancy, assigning local experts, equipment to assist in applying a comprehensive industrial survey.
Industrialization and Mechanical Engineering	ESCWA	1986	--	--	Short-term consultancy to evaluate industrial projects for occupied territories.
Industrial Development	USAID	1986-1992	--	--	Provide consultants, training and commodities to improve the production of private sector manufacturers at competitive prices.
Private Enterprise Assistance	USAID	1986-1989	--	--	Provide consultants, on-the-job training and commodities to alleviate constraints on industrial productivity and growth of the private sector.
Industrial Standards	EEC	1986	23	5	Short-term consultancy to identify project for establishing national standard for industry with RSS.
Jordan Industrial Estates Corporation	EEC	1986-1987	398	200	Team of consultants to assist JIEC in the operation of industrial estates plus training.
Sahab Industrial Workshop	Japan	1986	270	--	

Source: UNDP, Jordan: Annual Report on Development Co-operation 1986, July 1987.

ANNEX F

THE COMPLETED, APPROVED AND/OR OPERATIONAL TECHNICAL CO-OPERATION PROJECTS OF UNIDO SINCE 1972

UNIDO's Completed Technical Co-operation Projects

Hashemite Kingdom of JORDAN
(1)
since 1972

Backstopping Responsibility	Spec.Act.Code/ Progr.Element	Project Number	Project Title
IO/IIS/INFR	31.1.00	DP/JOR/72/004	Standard specified in directorate
IO/IIS/INFR	30.1.03	IS/JOR/71/805	Press printing operation and maintenance technician
IO/IIS/INFR	31.4.00	DP/JOR/71/010	Industrial estate
IO/IIS/INFR	31.3.A	DP/JOR/73/005	Assistance in standardization and quality control
IO/IIS/INFR	31.3.A	TF/JOR/73/005	Assistance in standardization and quality control
IO/IIS/INFR	31.3.F	DP/JOR/73/009	Assistance to Investment Promotion Office (JIPO)
IO/IIS/INFR	31.3.K	DP/JOR/77/022	Assistance to industrial testing and quality control industries
IO/IIS/INFR	31.3.M	SI/JOR/78/804	Assistance in the research and planning for a permanent industrial exhibition centre for Jordan
IO/IIS/FEAS	32.1.02	DP/JOR/67/513	Centre for industrial development
IO/IIS/FEAS	32.1.02	DP/JOR/72/005	Centre for industrial development
IO/IIS/FEAS	32.1.02	DP/JOR/73/004	Advisory service to the Industrial Development Corporation
IO/T/AGRO	30.6.02	RP/JOR/74/001	Food processing
IO/T/AGRO	31.7.A	SI/JOR/78/801	Assistance to the match industry
IO/T/AGRO	31.7.E	SI/JOR/81/801	Survey of the packaging industry for proposal of an integrated development programme
IO/T/ENG	00.0	IS/JOR/71/804	Assistance in repair of industrial machinery
IO/T/ENG	30.1.02	DP/JOR/69/008	Mechanical engineer fellowship
IO/T/ENG	31.9.B	DP/JOR/77/012	Preventive maintenance of equipment for phosphate mining

UNIDO's Completed Technical Co-operation Projects

Hashemite Kingdom of JORDAN
(2)

Backstopping Responsibility	Spec.Act.Code/ Progr.Element	Project Number	Project Title
IO/T/ENG	31.9.D	SI/JOR/77/802	Assistance to Solar Energy Centre, Amman
IO/T/CHEM	00.0	RP/JOR/72/003	Construction and building materials
IO/T/CHEM	30.3.00	RP/JOR/73/003	Construction and building materials
IO/T/CHEM	30.3.02	IS/JOR/75/039	Exploratory mission for the beneficiation of clay materials and other non-metallic minerals
IO/T/CHEM	30.5.02	IS/JOR/73/017	Assistance to the pesticides formulation industry
IO/T/CHEM	30.5.03	IS/JOR/73/018	Assistance to the plastics industry
IO/T/CHEM	32.1.A	SI/JOR/78/805	Assistance to the Cement Factory Company
IO/T/CHEM	32.1.A	TF/JOR/80/002	Assistance to the cement industry
IO/T/CHEM	32.1.B	TS/JOR/76/001	Assistance in gypsum building and processing
IO/T/CHEM	32.1.B	SI/JOR/78/802	Assistance to ceramic industry
IO/T/CHEM	32.1.B	SI/JOR/78/803	Assistance in the beneficiation and industrial application of bentonite
IO/T/CHEM	32.1.E	IS/JOR/71/803	Assistance to the paper and cardboard industry
IO/T/CHEM	32.1.E	SI/JOR/77/801	Assistance to the management of the Jordan paper and cardboard factories Co. Ltd.
IO/T/CHEM	32.1.G	TS/JOR/77/001	Assistance to the pesticide formulation industry
IO/T/CHEM	32.1.H	DP/JOR/80/001	Purchase of equipment for plastics in agriculture
IO/T/CHEM	32.1.H	SI/JOR/78/806	Assistance in reviewing the report on plastics industry in Jordan
IO/T/CHEM	32.1.H	SI/JOR/79/802	Plastics in agriculture - technological assistance (multifund to DP/JOR/80/001)

UNIDO's Completed Technical Co-operation Projects

Hashemite Kingdom of JORDAN
(3)

Backstopping Responsibility	Spec.Act.Code/ Progr.Element	Project Number	Project Title
IO/T/CHEM	32.1.H	SI/JOR/79/803	Mould and die design and manufacture for plastics industry
IO/T/CHEM	32.1.K	SI/JOR/79/801	Assistance to the Building Materials Research Centre
PPD/SR/REG	62.2.Z	TS/JOR/79/001	Development and joint use of certain technical and marketing facilities by the three major industrial/mining projects in Jordan
UNSPEC.	00.0	DP/JOR/71/011	Industrial banking techniques

UNIDO's Approved and/or Operational Technical Co-operation Projects
(approved = PAD issued)

Hashemite Kingdom of JORDAN

Backstopping Responsibility	Progr.Element	Project Number	Project Title
IO/IIS/PLAN	J12414	SI/JOR/86/805	High-level advisory services in the field of the industrial survey for the preparation of the national development plan
IO/T/ENG	J13313	TF/JOR/82/001*	Assistance to the RSS: manufacturing of solar water heater for industrial application
IO/T/ENG	J13316	SI/JOR/87/801	Introduction of modern maintenance technology to improve Arab Potash Company efficiency
IO/T/CHEM	J13420	SI/JOR/86/918	Assistance to the Azraq Salt Co-operative Society (multifund to UC/JOR/87/009)
IO/T/CHEM	J13420	UC/JOR/87/009	Assistance to the Azraq Salt Co-operative Society (multifund to SI/JOR/86/918)
IO/T/CHEM	J13420	SI/JOR/87/802	Assistance to the Arab Potash Company Ltd. in the field of precipitates removal

* Large-scale project (= total allotment $150,000 or above)
** Total allotment $1 million or above

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