OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

Distr.
LIMITED
UNIDO/IS.592
2 January 1986
ENGLISH

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

INDUSTRIAL DEVELOPMENT REVIEW SERIES

BAHRAIN

Prepared by the
Regional and Country Studies Branch
Division for Industrial Studies

V.86-50004

Preface

This series of industrial development reviews on developing countries is prepared within the framework of UNIDO country studies by the Regional and Country Studies Branch of the Division for Industrial Studies.

The reviews provide a survey and brief description of the respective country's industrial sector, as an information service to relevant sections within UNIDO and other international agencies as well as aid agencies in developed countries concerned with technical assistance to industry. It is expected that the reviews will prove a handy, useful information source for policy-makers in the developing countries as well as for industrial entrepreneurs, financiers and economic researchers.

The reviews draw primarily on information provided by the UNIDO data base and material available from national and international statistical publications. Since up-to-date national statistical data usually are not complete, it is evident that the reviews will need to be updated and supplemented periodically. To supplement efforts underway 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 UNIDO with relevant comments, suggestions and information. Such response will greatly assist UNIDO in improving and updating the reviews.

The present Review was prepared on the basis of information available at UNIDO headquarters in September 1985. It is divided into two rather distinct parts. Chapters 1 and 2 are analytical in character, 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. Chapters 3 and 4 contain various kinds of reference material on national plans and policy statements relevant to industrial development, on the more important governmental and other institutions involved in industrial development and on the country's natural, human and financial resources for industrial development. The Review also contains relevant basic indicators

and graphical presentations of manufacturing trends as well as statistical and other appendices.

It should be noted that the reviews are not official statements of intention or policy by Governments nor do they represent a comprehensive assessment of the industrial development process in the countries concerned.

CONTENTS

LIST OF TABLES

List of Tables in Appendix A

List of Tables in Appendix B

EXPLANATORY NOTES

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 (1970/71) indicate a crop year or a financial year. Dates divided by a hyphen (1970-71) indicate the full period, including the beginning and end years.

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

In tables:

Three dots (...) indicate that data are not available or are not separately reported;

A dash (-) indicates that the amount is nil or negligible;

A blank indicates that the item is not applicable;

One dot (.) indicates that there is insufficient data from which to calculate the figure.

Totals may not add precisely because of rounding.

Basic indicators and graphical illustrations of manufacturing trends contained in this Review are based on data sourced from the UNIDO data base, the Bahrain Monetary Agency, international organizations and commercial sources.

THIS REPORT IS BASED ON INFORMATION AVAILABLE AS AT SEPTEMBER 1985.

The following abbreviations are used in this document:

AISCO	Arab Iron and Steel Company
ALBA	Aluminium Bahrain
APICORP	Arab Petroleum Investment Corporation
ASRY	Arab Shipbuilding and Repair Yard
BALCO	Bahrain Saudi Aluminium Marketing Company
BALEXCO	Bahrain Aluminium Extrusion Company
BALICO	Bahrain Light Industries Company
BANAGAS	Bahrain National Gas Company
BANOCO	Bahrain National Oil Company
BAPCO	Bahrain Petroleum Company
BASREG	Bahrain Ship Repairing and Engineering Company
b/d	barrels per day
BD	Bahrain Dinar
GARMCO	Gulf Aluminium Rolling Mill Company
GCC	Gulf Co-operation Council
g/d	gallons per day
GDP	gross domestic product
GNP	gross national product
GOIC	Gulf Organization for Industrial Consulting
GPIC	Gulf Petroleum Industries Company
HOCC	Heavy Oil Conservation Company
ISIC	International Standard Industrial Classification
mcfd	million cubic feet a day
MVA	manufacturing value added
mw	mega watts
OAPEC	Organization of Arab Petroleum Exporting Countries
OBUs	Offshore Banking Units
OPEC	Organization of Petroleum Exporting Countries
SAMA	Saudi Arabian Monetary Agency
SITC	Standard International Trade Classification
t/y	tonnes per year
UAE	United Arab Emirates

BASIC INDICATORS 1
The economy

GDP:	BD 1,895 million (1984)[a/]
Population:	393,800 (mid-1983), 63 per cent Bahraini, 13 per cent Asian, 10 per cent Arab, 8 per cent Iranian, 6 per cent other.
Annual average growth rate of population:	3.6 per cent (1971-1983)
Area:	669.26 square kilometres
Density:	59 persons per square kilometre
Adult literacy:	70 per cent (1984)
GNP:	$4.12 billion (1983)
GNP per capita:	$10,560 (1984)

GDP growth rate: (per cent)	1975-78	1979-81	1982	1983	1984
	17.5	8.4	7.6	4.4	3

Sectoral origin of GDP (per cent):	1975	1980	1983
Agriculture	1.5	1.0	1.0
Mining and quarrying (mainly crude oil)	27.8	29.4	23.3
Manufacturing	22.8	18.5	20.7
Services	47.9	51.1	55.0

Rate of inflation : (per cent)	1979	1980	1981	1982	1983	1984	1985
	2.3	3.8	11.3	8.9	3.0	2.3	2.1

Currency exchange rate: (Bahraini dinar equivalents to $1)	1970	1978	1980	Sept. 1985
	0.48	0.38	0.37	0.37

a/ Estimate at current prices.

BASIC INDICATORS 2
Resources and transport infrastructure

Resources

Oil (proven) reserves:	225 million barrels (1983)
Production:	41,800 b/d in 1983
Production peak level:	77,000 b/d in 1970
Estimated period before exhaustion of oil reserves:	20 years
Gas (proven) reserves:	230 billion m^3 (1983). Khuff area
Production:	4.9 bn m^3 (1982)
Estimated period before exhaustion of gas reserves:	50 years

Transport

Well developed transport system:	56,797 passenger cars (1981)
Causeway:	25 km long costing $600m to link Bahrain and Saudi Arabia
Airport:	Muharraq Airport - passenger traffic 3mn (1982)
Harbour:	at Mina Sulman has 14 berths and 2 container terminals

BASIC INDICATORS 3
Foreign trade and balance of payments

Exports:	total value:	$3,140 million (1984)
	main goods:	petroleum products, aluminium manufactures, machinery and transport equipment
	main destinations:	Saudi Arabia, Japan, Hong Kong, UAE, UK
Imports:	total value:	$3,523 million (1984)
	main goods:	crude oil, raw materials, machinery and transport equipment, manufactured goods, chemicals
	Main origins:	US, UK, Japan, Australia, France
Balance of payments: (current account)		- $10.6 million (1984)
Official reserves:		$1.3 billion (1984)
External public debt: (over 1 year of maturity)		$242 million (1983)
Debt service ratio:		3 per cent of goods and services exported (1983)

BASIC INDICATORS 4
The manufacturing sector

Manufacturing value added:	$400 million (1982)				
MVA per capita:	$1,056 (1982)				
Annual average growth of MVA (per cent):	1975-78	1979-81	1982	1983 a/	1984 a/
	12.4	10.1	-3.6	2.6	3.4
Employment in manufacturing:	14,000 (1985)				
Composition of MVA: (per cent)				1973	1982
	Industrial chemicals			14.0	56.6
	Refined petroleum			77.9	35.9
	Non-ferrous metals			8.1	7.5
Manufactured exports and imports b/ (1982):					
Exports:	$2,943 million				
Share of total exports:	82 per cent				
Imports:	$1,670 million				
Share of total imports:	46 per cent				

a/ Estimate.

b/ Based on the definition of trade in manufactures covering a list of 148 specifically identified SITC 3-digit or 4-digit codes comprising a wide range of processing stages of manufactured goods.

BASIC INDICATORS 5
Trade in manufactured goods

In 1982

MANUFACTURED EXPORTS[a/] total value: $626 million

Principal manufactured exports a/	(Per cent of total)	Destination (in per cent)				
		Developing countries	Developed market countries			Centrally planned developed countries
			EEC	USA	Japan	
Chemicals	(41.4)	13.4	28.7	6.4	38.4	0.00
Non-ferrous metals	(36.6)	31.0	2.0	0.03	49.6	0.00
Machinery and transport equipment	(8.4)	90.9	1.8	0.4	0.00	0.00
Other	(13.6)	100.0	0.00	0.00	0.00	0.00

MANUFACTURED IMPORTS[b/] total value: $1,441 million

Principal manufactured imports b/	(Per cent of total)	Origin (in per cent)				
		Developing countries	Developed market economies			Centrally planned developed countries
			EEC	USA	Japan	
Machinery and transport equipment	(44.7)	4.7	36.2	30.6	22.2	0.06
Chemicals	(15.7)	4.9	21.5	7.01	2.8	0.03
Non-metallic mineral manufactures	(4.6)	43.5	27.3	2.8	4.7	0.32
Textile yarn, made-up articles	(4.1)	18.8	18.7	12.6	43.1	0.21
Other	(30.9)	...	...	...	...	...

a/ SITC 5-8.
b/ SITC 5-8 less 68. This narrow definition of trade in manufactures, most often found, covers only items recognized as exclusively manufactured goods, i.e., with high level of manufacturing content.

BASIC INDICATORS 6
Inter-country comparison of selected indicators

Indicator	measure	period	Bahrain	Kuwait	UAE	Saudi Arabia	Oman	Qatar
Population	millions	1982	0.358	1.6	1.1	10.0	1.1	0.260
GDP	$ million	1982	2,100	20,060	29,870	153,590	7,110	6,540 e/
per capita	US $ a/	1982	8,460	19,870	23,770	16,000	6,090	27,720 e/
growth rate	per cent per annum	1978-1982	6.7	5.5 c/	3.9	7.5 c/	5.8 c/	15.0 f/
Agriculture	as per cent of GDP	1982	1.0	1.0	1.0 d/	1.0		0.5
Industry	as per cent of GDP	1982	88.0	61.0	77.0 d/	77.0		90.0
Manufacturing	as per cent of GDP	1982	21.5	7.0	4.0 d/	4.0		4.0
Services	as per cent of GDP	1982	11.0	30.0	22.0 d/	22.0		9.5
Gross domestic investment	as per cent of GDP	1982	27.6	23.0	28.0	25.0		15.6 g/
External public debt	as per cent of GDP	1982	9.7	...	...	...	11.5	...
Share of world MVA	per cent	1981	0.01	0.03	0.0	0.13		
MVA growth rate b/	per cent per annum	1975-1979	12.4 b/	9.5 c/		6.8 c/		

a/ GNP.
b/ growth rate of manufacturing output at constant 1972 prices.
c/ 1970-82 at constant 1970 prices.
d/ Figures are for 1980.
e/ GNP for 1981.
f/ 1978-82 but at current prices.
g/ 1981.

Note: Six countries listed are the members of the Gulf Co-operation Council (GCC).

Executive Summary

After a decade of steady growth fuelled by oil revenue in the 1970s, economic growth remains subdued in recent years. Despite a slowdown in economic activity, the country's industrial base continues to widen along the path of economic diversification - necessitated by the depleting oil reserves and falling hydrocarbon revenues.

The manufacturing sector is dominated by energy- and capital-intensive heavy industries. Traditional light industries, e.g., pearling, fish processing and dhow building still persist, but on a much smaller scale. Manufacturing activities are dominated by three major establishments namely the oil refinery, the aluminium smelter and ship-repairing facility. A fourth major plant for natural gas liquid using associated gas is a new addition to the Bahraini manufacturing sector. Aluminium extrusion and powder as well as aluminium cable plants are downstream adjuncts of aluminium smelter. Other activities in the manufacturing sector process and assemble a variety of imported materials and components.

The manufacturing sector has grown rapidly since the early 1970s - currently it accounts for about 21 per cent of GDP. Its share of exports is also significant. The Government recognizes that the manufacturing sector will have to play a major part in the diversification of the economy. Most existing and anticipated developments point to a rapid expansion of industrial units relying on energy-intensive technologies - depending crucially upon the use of domestic supplies of gas. The weak domestic linkages of Bahraini manufacturing are illustrated by the disparity in its share of GDP on the one hand and employment on the other. The manufacturing sector is essentially export oriented, which is likely to be strengthened by the new investments jointly planned with the Gulf States in steel, petrochemicals and refining.

The Bahraini manufacturing sector has been passing through an era of substantial structural changes in the composition of MVA, with the commissioning of a series of new industrial plants. The share of industrial chemicals in total MVA increased rapidly from 14 per cent in 1973 to 56.6

per cent in 1982, and that of petroleum refineries declined significantly from 77.9 per cent to 35.9 per cent during the same period. However, Bahrain's export-oriented industrial expansion will not be independent of the hydrocarbon industry because of huge investments already made in refining. The industrial infrastructure may be radically changed by the opening of the causeway in December 1985 which links Bahrain with Saudi Arabia.

An industry-wise analysis of performance and efficiency reveals mixed trends. Manufacturing process based on oil-associated gas appears to be a bright spot on the oil scene. The Gulf war seems to have adversely affected the prospects of the Arab Iron and Steel Company. In the short-term, the survival of the company hangs on the shareholders' support and improvement in world steel market. The ship-repairing industry is in deep recession and the industry is conditioned to diversify its activities. In an effort to diversify, the industry has already entered the steel fabrication market. The aluminium industry is in better shape. Using alumina imported from Australia and abundant domestic supplies of gas as fuel the industry manufactures a wide range of products. Despite marketing difficulties, Bahrain's petrochemical plant is emerging as a promising manufacturing activity. Thus, the diversification of the economy principally through the development of a non-hydrocarbon industrial base is likely to offset the effects of declining oil reserves and hydrocarbon revenues.

The Bahraini manufacturing sector will continue to remain essentially export oriented. The regional integration of investment strategies which is currently taking place needs to be complemented by a corresponding integration of trade structures. Although the Gulf countries provide the main markets for Bahraini manufactured exports, they are not major suppliers of industrial inputs - except crude oil from Saudi Arabia. Establishing trade complementarities in the Gulf area will be of crucial importance for economic diversification and industrial development. Industries using associated gas and downstream activities in aluminium and petrochemical industries are likely to influence the future pattern of industrialization in Bahrain.

1. THE ECONOMY OF BAHRAIN

1.1 Recent economic trends

The Bahraini economy has suffered deceleration in economic growth in consequence of the oil-induced recession that has adversely affected the Gulf economies in recent years. Real GDP grew at an average annual rate of 17.5 per cent during 1975-78. It fell to 8.4 per cent during 1979-81, and slowed again to 7.6 per cent in 1982. Deceleration further continued in 1983 and 1984, with growth rates of 4.4 per cent and 3 per cent respectively. According to recent estimates, economic growth is picking up in 1985.

Bahrain's overall trade deficit increased from $142.8 million in 1983 to $387.2 million in 1984. Imports of crude oil and food products rose by 5 per cent in 1984. The non-oil account deficit was around $1.5 billion in 1984, because of 31 per cent drop in exports of aluminium and steel.

Bahrain was the first of the Gulf States to discover oil. At present the country's crude production is only 40,000 b/d, compared with a peak level of 76,000 b/d in 1970. At current rates of extraction, reserves will be approaching exhaustion by late-1990s. The State-owned company, Bahrain National Oil Company (BANOCO), has embarked on a five-year development drilling programme to arrest the historical 5 per cent annual decline in oil production over the past two years.

It is clear that the oil sector will not continue to propel economic growth to the extent that it has done in the 1970s. The policy-makers realized the need for an alternative engine of growth at the early stages of development, and gave serious thought to the desirability of placing greater emphasis on manufacturing in general and non-oil manufacturing in particular. One of their main priorities in the sphere of economic diversification has been non-hydrocarbon industrial base, with a greater emphasis placed on export-oriented heavy industry. The establishment of Aluminium Bahrain (ALBA) in 1971 was a major step in the country's diversification process and several downstream processing plants have now been set up. The Bahrain Saudi

Aluminium Marketing Company (BALCO), which is responsible for marketing the Bahraini and Saudi share (77.9 per cent) of ALBA, reported a record profit of $40 million in 1984 despite a downturn in aluminium prices in the second half of the year. The other major industrial ventures are the Arab Shipbuilding and Repair Yard (ASRY) and the Arab Iron and Steel Company (AISCO). Owing to continued losses, ASRY has been under pressure to diversify its productive capacity for steel fabrication. Bahrain's non-hydrocarbon industrial base is continuing to expand. Downstream activity at the Sitra industrial estate is developing rapidly. Light manufacturing industries are also emerging to complement heavy industry.

The two-year budget for 1984-1985 allocated $1,450 million for capital and current spending in 1984 and $1,530 million for 1985. Current expenditure was planned to increase by 4 per cent in 1984 and by 5 per cent in 1985. On the other hand, declining oil revenues forced the Government to reduce capital spending. The rate of inflation was kept down to 3.0 per cent in 1983, compared with 8.9 per cent in the previous year. Inflation rate has remained at low level in 1984 and 1985, averaging 2 per cent. As part of an expansionary two-year budget for 1986-87, Bahrain is planning to launch a new development programme in 1986.

An index of Bahrain's good economic prospects in the medium run is the growth of the assets of the Offshore Banking Units (OBUs) operating in Bahrain. The OBUs currently number about 75. Assets of OBUs reached $62.7 billion in December 1983 and again in March 1984 when they reached an all time high of $63.5 billion. However, the Saudi decision to restrict the availability of offshore riyals has affected the spread of currency held by the OBUs - with the dollar being substituted for regional currencies. In March 1985 total assets of OBUs stood at $61.1 billion.

Recent efforts toward the establishment of new industrial projects merit special attention. The US company, Occidental Petroleum, is actively interested in establishing a new Bahrain-based company, Arab Oxy, as a joint venture with Arab equity participation with an initial capital of $430 million. The new company would be concerned with the exploitation and production of both oil and gas reserves. Output at the Sitra refinery has

increased to 215,000 b/d in the first half of 1984 - a 9 per cent increase over 1983 average production level. Construction of the cracker at Sitra has received further impetus from the decision not to go ahead with the $2 billion oil cracker plant commissioned by the Gulf-based Heavy Oil Conversion Company. This decision was taken in the light of the continuing decline in the international price of heavy distillates. Another important project recently sanctioned is a desalination plant at al-Daron on the Southeast Bahraini coast. The plant - reputed to be the largest in the world - is to be constructed by a consortium of British and South Korean firms. The initiation of such major projects indicates confidence in Bahrain's medium-run economic projects from a wide range of economic and business circles.

The causeway between Bahrain and Saudi Arabia will constitute a major step in overcoming the market size barriers which constrain Bahrain's industrial development. Plans to construct a second causeway to link Bahrain with Qatar are under consideration. Owing to strong economic linkages between the Bahraini economy and the Gulf economies, an improvement in growth prospects will, however, continue to depend mainly on the growth prospects of neighbouring Gulf States.

1.2 Economic structure

Bahrain consists of a group of 33 low lying islands, the total area of which is 670 square kilometres. The country had a population of around 393,800 in mid-1983. The economy grew rapidly during the second half of the 1970s. Budget deficits and inflation rates were high during this period. In 1979 the Government embarked upon a stabilization programme which has reduced the rate of growth of both the money supply and GDP. GNP is usually 66 per cent of GDP due to the very high levels of outflow of profits and other remittances. GNP *per capita* was estimated at around $10,560 in 1984.

Several distinct features of the Bahraini economy differentiate it from the economies of the Gulf States. Its oil sector contributes 23.3 per cent of GDP as against largest contributions of this sector to GDP in other Gulf States. MVA currently accounts for about 21 per cent of GDP, the highest

contribution in the Gulf. Unlike its Gulf neighbours, Bahrain is not an exporter of crude oil.[1/] The country's domestic oil output is processed at the refinery located in Sitra island. Saudi light oil is imported through the Arabia-Bahrain pipeline.

Table 1 shows the sectoral distribution of GDP in local currency at current prices during the period 1975-83. The share of mining and quarrying (mainly crude oil) declined from 27.8 per cent in 1975 to 23 per cent in 1983. The rate of extraction registered an annual decline of 3.0 per cent between 1980 and 1983. Manufacturing accounted for 20.7 per cent in 1983. The service sector contributes more than 50 per cent of GDP. The agricultural sector accounts for a negligible share in GDP.

Refined petroleum remains the principal foreign exchange earner and source of budgetary income in Bahrain. The country's fiscal and external positions have been weakened by both depressed demand for hydrocarbons and downward trend in the price of oil in recent years. The continued shortfalls in oil-derived revenues resulted in budget deficits. There are indications that the next two-year budget for 1986 and 1987 will reflect the need to reduce the budget deficit by bringing expenditures more in line with the projected hydrocarbon revenues.

Development expenditure included in the biennial budget comes under the Economic and Social Development Programme. The programme was initiated in 1982, and was planned to last until the end of 1985. In early 1983, as a result of falling oil revenues, the programme was extended for another two years to 1987. Over 70 per cent of the programme's total expenditure is allocated to infrastructure projects such as electricity, water and sewage, and housing. Defence and security will take just over 5 per cent of the total.

1/ Bahrain is not a member of the Organization of Petroleum Exporting Countries (OPEC). It is a member of the Organization of Arab Petroleum Exporting Countries (OAPEC).

Table 1. Gross domestic product by kind of economic activity in producers' values, 1975-1983
(million dinars at current prices)

	1975		1980		1981		1982		1983[a/]	
Agriculture	7.3	(1.5)	14.9	(1.0)	16.2	(0.9)	15.4	(0.9)	15.7	(1.0)
Mining & quarrying	130.4	(27.8)	434.4	(29.4)	433.8	(25.5)	411.2	(24.0)	399.0	(23.3)
Manufacturing	107.9	(22.8)	273.8	(18.5)	350.4	(20.6)	340.0	(19.8)	360.0	(20.7)
Electricity, gas & water	1.1	(0.2)	12.0	(0.8)	15.4	(0.9)	15.0	(0.8)	15.5	(0.9)
Construction	25.5	(5.4)	97.9	(6.6)	113.6	(6.7)	110.2	(6.4)	116.8	(6.7)
Wholesale & retail trade, restaurants & hotels	72.5	(15.4)	163.1	(11.1)	166.6	(9.8)	158.3	(9.3)	160.0	(9.2)
Communication	29.7	(6.3)	110.8	(7.5)	126.4	(7.4)	120.0	(7.0)	125.4	(7.2)
Financial institutions & insurance	10.9	(2.3)	133.7	(9.1)	200.4	(11.8)	190.4	(11.1)	182.0	(10.4)
Real estate & business services	24.6	(5.3)	67.2	(4.6)	88.2	(5.1)	83.8	(4.9)	85.0	(4.9)
Community, social and personal services	23.7	(5.1)	72.3	(4.9)	88.0	(5.2)	72.9	(4.3)	75.0	(4.3)
Producers of government services	35.3	(7.6)	94.7	(6.4)	99.1	(5.8)	193.3	(11.2)	200.0	(11.4)
Gross domestic product in producers' values	468.9	(100)	1474.8	(100)	1698.1	(100)	1710.5	(100)	1734.4	(100)

Source: ECWA, National Accounts Studies, December 1984.

a/ ECWA estimates.

Note: Figures in parentheses indicate percentage share of GDP.

A major infrastructural problem has been the maintenance of ample water supplies. Aquifers which traditionally met the country's needs are proving inadequate in the face of rising domestic demand. The water table is falling and becoming increasingly saline. The Government encourages drip irrigation to reduce agricultural demand and wastage. Though agriculture accounts for only 1.4 per cent of GDP the sector is about to get a facelift in Bahrain, with plans for farming revival through drip irrigation system.

Bahrain's export profile is dominated by mineral fuels, lubricants and related products. It means that the value of exports remains dependent on the vagaries of the oil market. The value of manufactured exports has risen consistently. They grew by 11 per cent in 1983 to account for an equivalent percentage of total exports. According to available data, non-oil exports fell by 30 per cent in the first half of 1984, compared to the same period of 1983. The policy of economic diversification actively pursued by the Government has not made Bahrain's exports independent of oil-related products. The main destinations for refined oil are Japan, Singapore and the UAE. Aluminium is the principal non-oil export item - Saudi Arabia and Japan are the prime clients.

Crude oil imports make up one-half of the total. The scale of oil imports is dependent upon Saudi Arabian crude oil production and the state of world energy demand. Non-oil imports originate from a range of industrialized countries. Imports from Europe include textiles, clothing, footwear, machinery and electrical equipment. Australia is the main supplier of alumina. By type, crude oil imports make up around one-half of the total imports, and machinery, including transport equipment, is the next most significant item.

Despite deterioration in the trade position in recent years, foreign exchange reserves enjoy a comfortable degree of liquidity. Bahrain's reserve position has been consistently strong since the mid 1970s. Foreign debt is estimated at $250 million. The debt service ratio is about 3 per cent. Debts have been obtained largely for financing industrial sector projects. Rapid growth of the manufacturing sector is seen to be very important for economic diversification.

Despite the liberal policy framework, the Government plays a major role within the economy. It is by far the single largest employer - accounting for 26 per cent of the total and 45 per cent of the national (i.e. Bahraini non-expatriate) labour force. The Government of Bahrain is also a substantial industrial investor. The capital expenditure plan comprises two elements - infrastructural spending to cope with the electricity, water, sewerage and housing requirements of the overcrowded urban population, and a more selective spending which attempts to develop new investment opportunities in the manufacturing sector.

1.3 The manufacturing sector: an overview

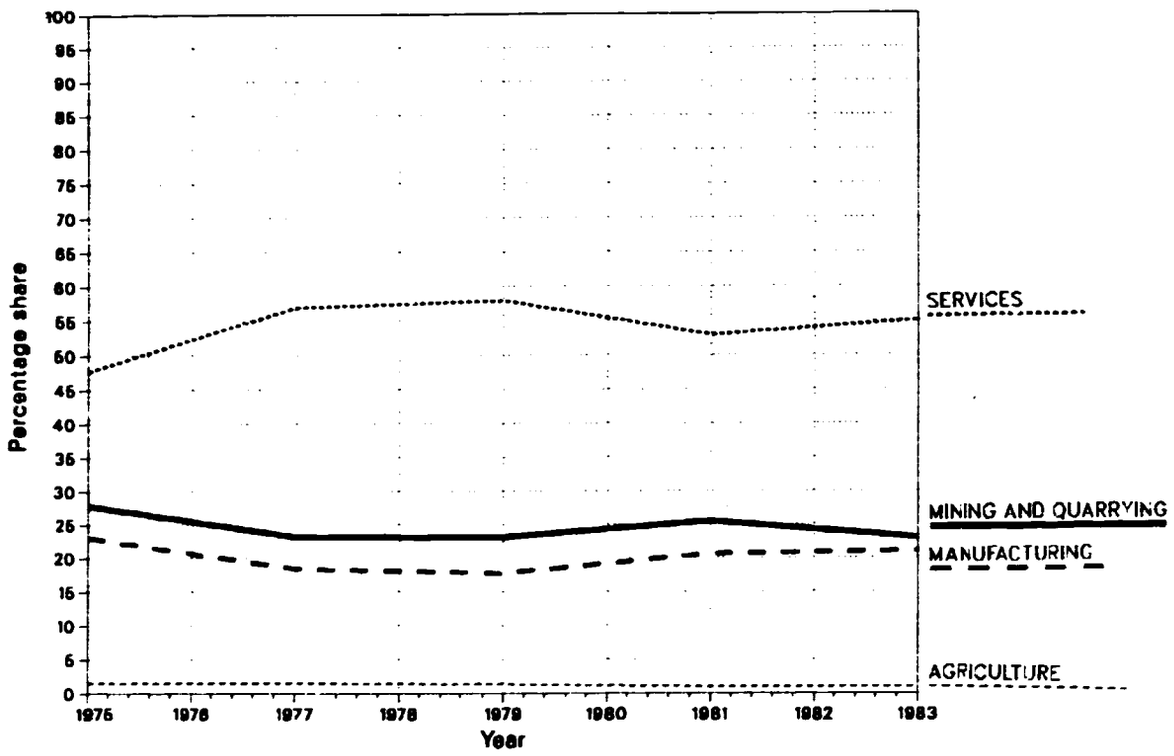
The manufacturing sector consists of large oil and aluminium processing enterprises owned by the State and with substantial foreign capital. There is also a thriving shipbuilding industry. The private sector enterprises are involved in the production of beverages, plastics, tiles, concrete blocks, matches, nails, industrial gasses, wood products, air conditioners, food manufactures, system-built houses and downstream aluminium products. Traditional industries arising from Bahrain's island status, e.g., dhow building and fishing, also exist on a smaller scale. The Government pursues a liberal industrial policy and encourages both domestic and foreign private investment in the manufacturing sector. Many new industrial projects - estimated at about $2.5 billion - are being initiated with the support of other Gulf countries.

MVA currently accounts for about 21 per cent of GDP - although its share in total employment is significantly smaller. The proportion of manufactures in total exports has risen. The industrial strategy is oriented towards a rapid development of energy- and capital-intensive heavy industries aiming at the regional market. Despite the recession - which has affected most Gulf countries since 1982 - there are no signs that plans to expand capacity in aluminium, steel and petrochemicals are being shelved. Rapid diversification of the economy is considered to be of particular interest as oil reserves are depleted. Both the manufacturing and the service sectors (particularly banking) are expected to play a key role in the sphere of economic diversification.

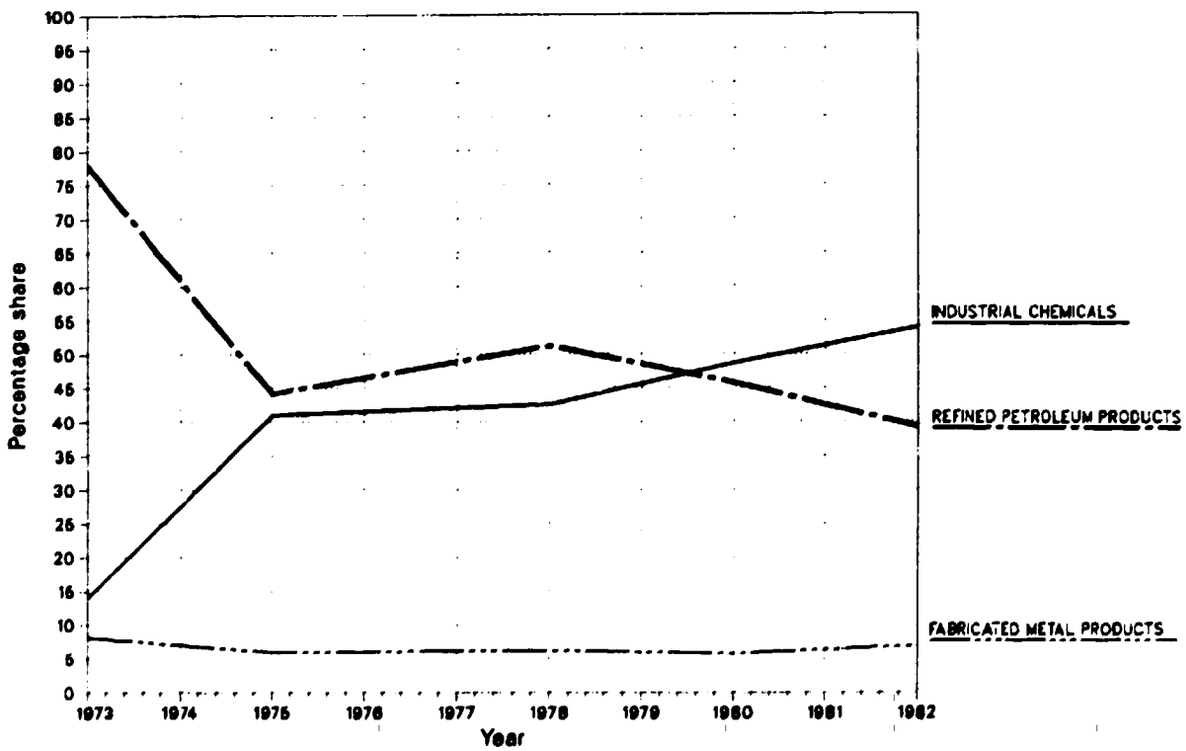
A bright spot in the domain of oil-based projects is the five-year-old Bahrain National Gas Company (BANAGAS) liquefaction plant, which contributed $57 million to the State revenue in 1984 in the form of taxation, dividends, etc. It produces oil-associated gas, and more than 3 million barrels of propane, butane and naphtha is purchased by the US company Caltex. The aluminium industry is in a better shape. The Gulf war seems to have affected the prospects of the Arab Iron and Steel Company (AISCO) by snatching away 50 per cent of its natural market. The ship-repairing industry continues to be in deep recession, as a result of oil glut and the Gulf war. There seem to be better prospects for downstream petrochemical development into intermediate rather than finished products. While the bulk of expenditure is on export-oriented heavy industry, the development of light manufacturing is not neglected. Private enterprises in this field can count on substantial government support.

MANUFACTURING TRENDS

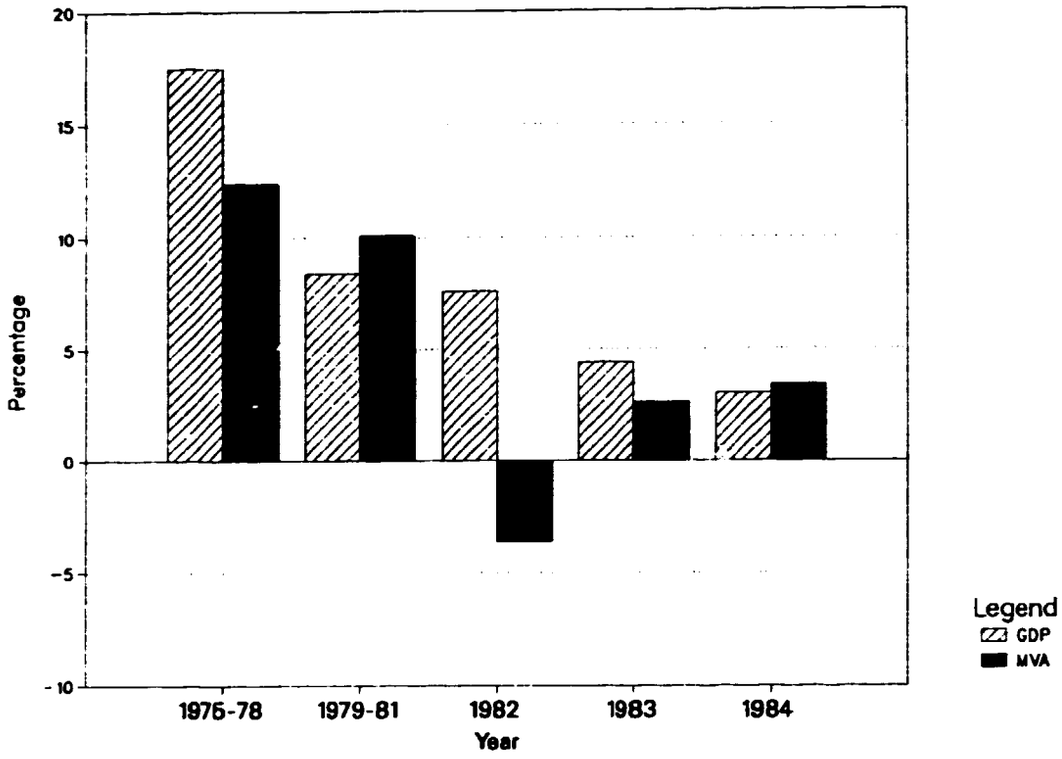
COMPOSITION OF GDP BY SECTOR OF ORIGIN, 1975-1983



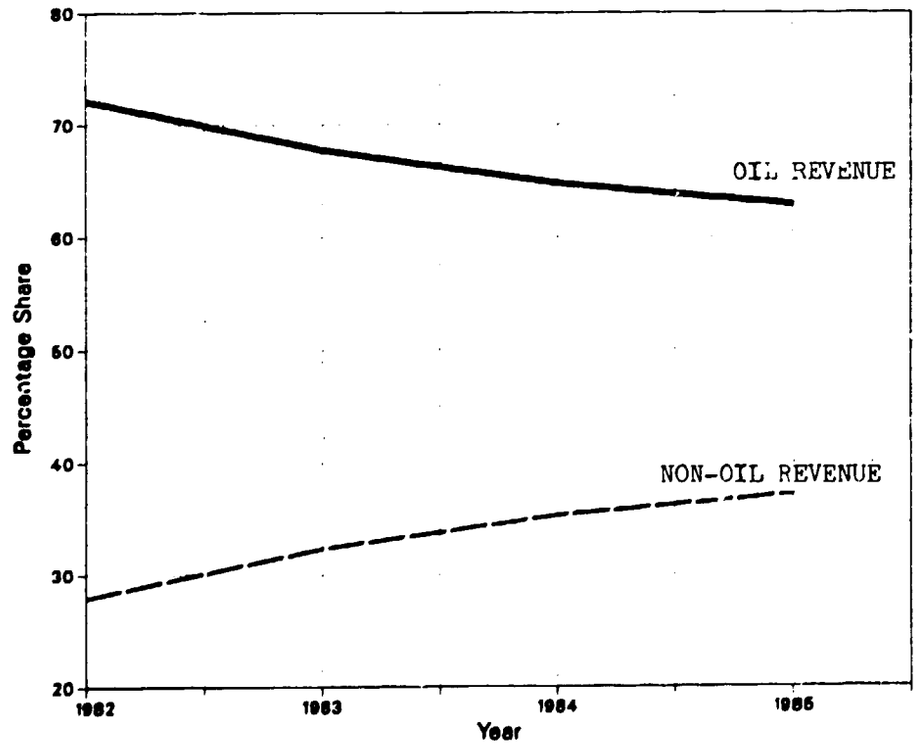
COMPOSITION OF MANUFACTURING VALUE ADDED, 1973-1982



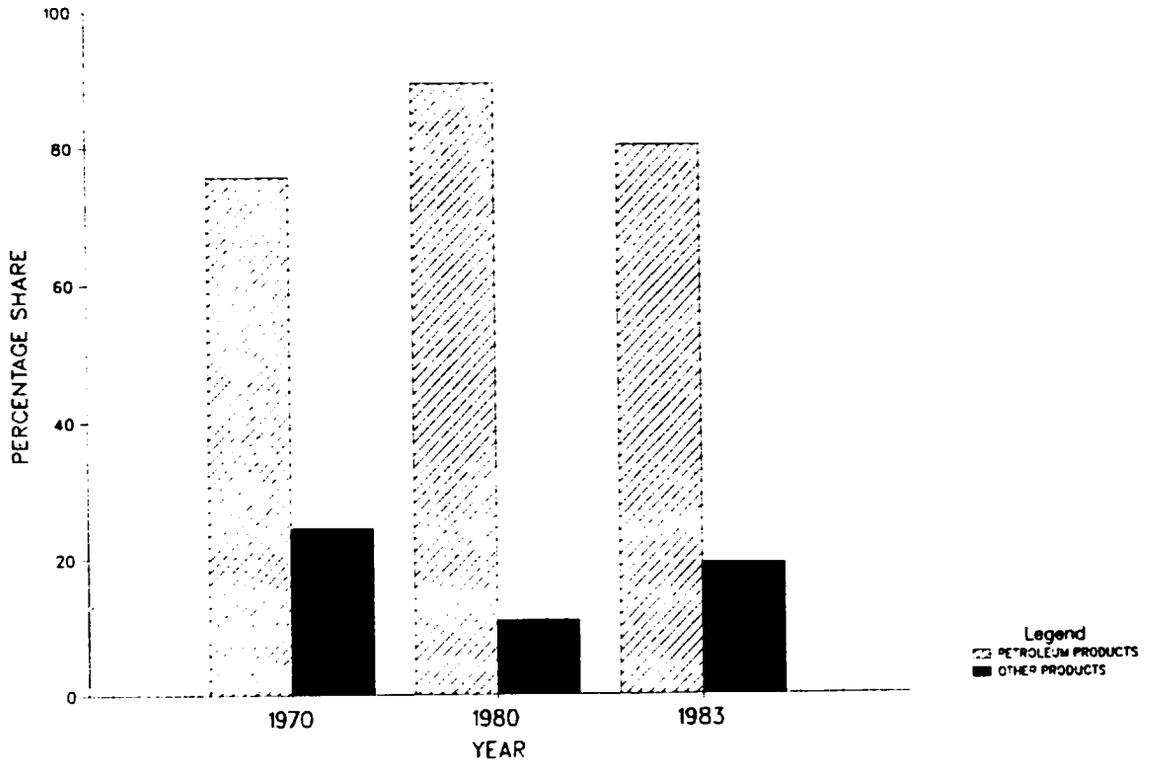
ANNUAL AVERAGE GROWTH RATES OF GDP AND MVA, 1975-1984



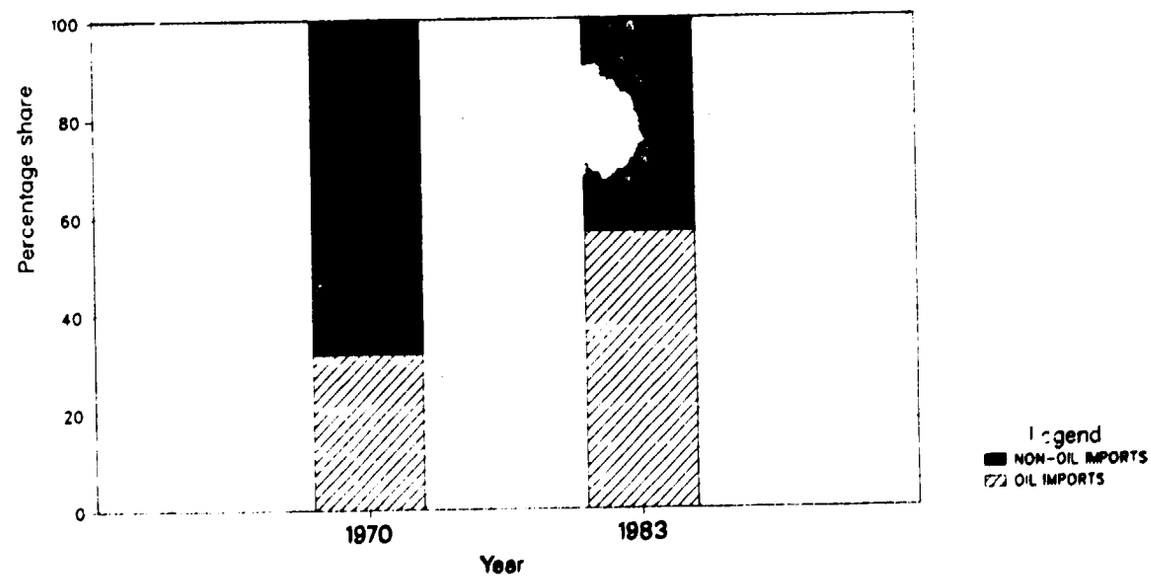
COMPOSITION OF TOTAL REVENUE, 1982-1985
(percentage shares)



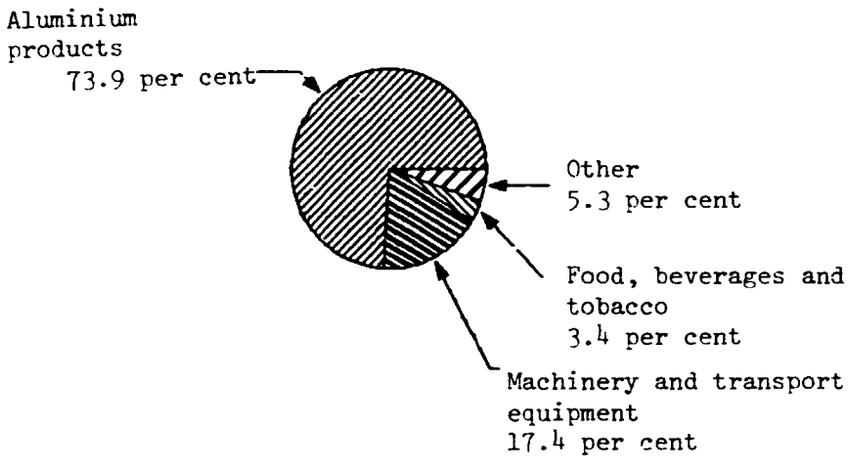
SHARE OF PETROLEUM PRODUCTS IN TOTAL EXPORTS,1970,1980 AND 1983



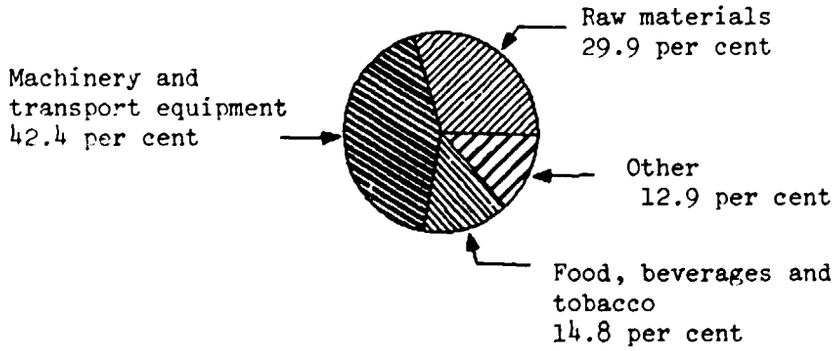
SHARES OF OIL AND NON-OIL IMPORTS IN TOTAL IMPORTS, 1970 AND 1983



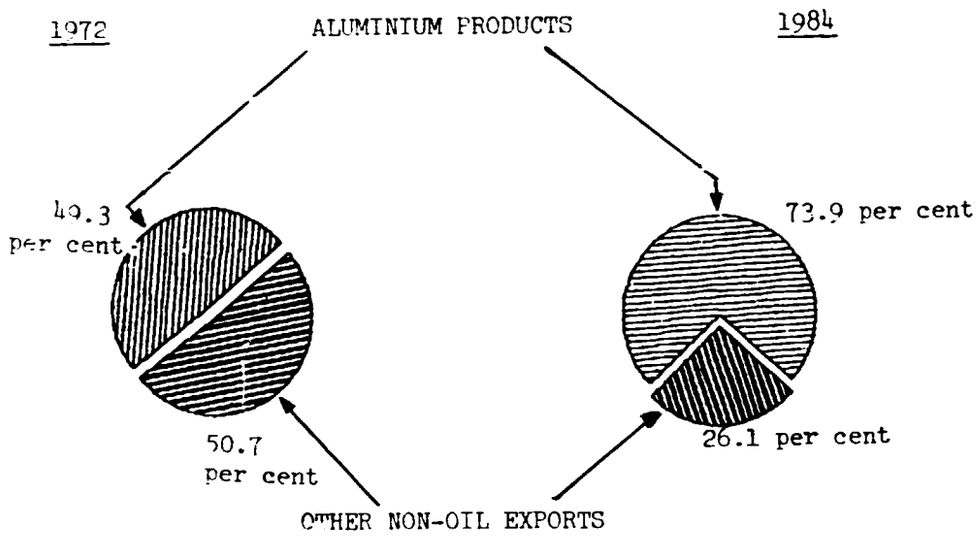
COMPOSITION OF NON-OIL EXPORTS IN 1984



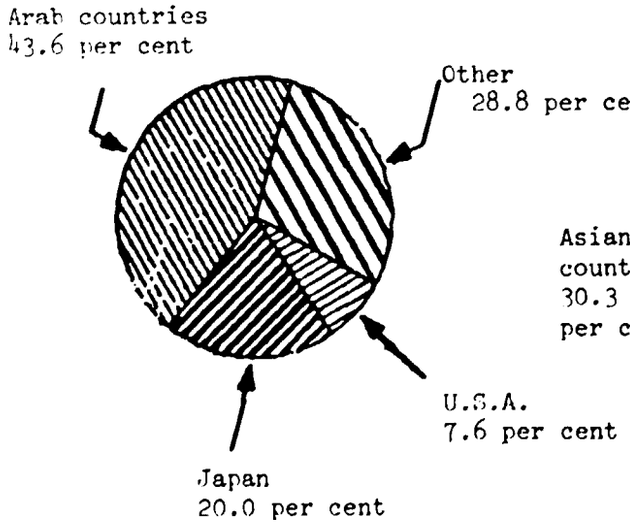
COMPOSITION OF NON-OIL IMPORTS IN 1984



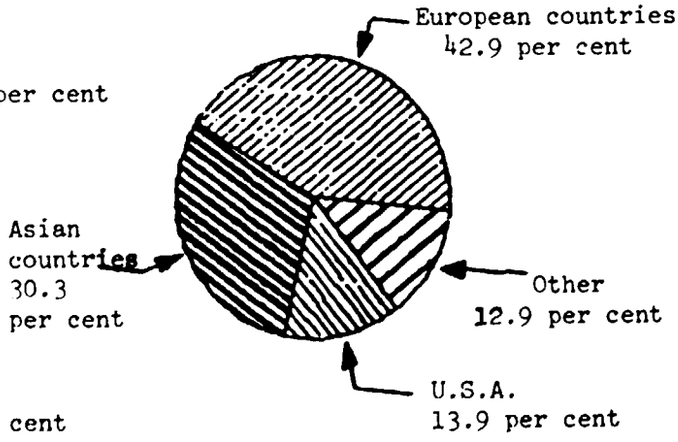
SHARE OF ALUMINIUM PRODUCTS IN NON-OIL EXPORTS, 1972 AND 1984



DESTINATION OF EXPORTS, 1984



ORIGIN OF IMPORTS, 1984



2. STRUCTURE AND PERFORMANCE OF THE MANUFACTURING SECTOR

2.1 Growth and structural change

Against a background of depleting oil reserves that had already given an early warning signal indicating that oil revenues would not buoy the Bahraini economy as it did in the past, the manufacturing sector started to assume a critical role in the sphere of economic diversification. During the period 1975-78 manufacturing output grew at an annual rate of 12.4 per cent (in constant 1972 prices). The growth achieved during the first half of the 1970s was significantly higher. Having suffered a negative growth rate of 3.6 per cent in 1982, the manufacturing sector displayed signs of recovery during 1983 and 1984. The decline in oil prices since 1981 has meant a rapid growth in the manufacturing share of GDP. It has been estimated that by 1984 the share of manufacturing, including petrochemicals, has reached 21 per cent and is higher in Bahrain than in any other Gulf country.[1/] In an earlier study undertaken by UNIDO it had been forecast that manufacturing would emerge as the main economic sector in Bahrain during the 1980s.[2/] The spurt in manufacturing activities has been enhanced by a relatively well developed infrastructure, skilled labour and a good communications network.

The main manufacturing sub-sectors have grown rapidly over the period 1976-1981. Production in the local oil refinery increased the treatment of crude oil from an annual average of 261,000 b/d during 1976 to an annual average of 276,000 b/d during 1981. In general, production in the refinery sector during 1979-1981 exceeded its average capacity level of 250,000 b/d - this being in marked contrast to the experience of most other refineries in the Gulf region where capacity utilization is on average about 66 per cent. After 1981, however, production in the Bahrain oil refinery declined significantly. In late 1982 daily average output was estimated at 165,000 b/d. By the second quarter of 1983 production was further cut to about

---

1/ UNIDO, Domestic Economic Growth and Move to Sub-Regional Industrial Restructuring in Bahrain, May 1984, p. 89 (draft).

2/ UNIDO, Long-Term Prospects of Industrial Development in Bahrain, UNIDO/IS.235, June 1981, pp. 107-168.

150,000 b/d - representing a capacity utilization rate of just 60 per cent. The reduction in production largely reflects flagging export demand.

Production in the local aluminium industry has increased from 122,060 metric tons in 1976 to 126,096 metric tons in 1980. In 1981, following expansion of production capacity, output increased by 21 per cent to reach 170,960 metric tons - higher than the estimated level of production capacity in the Bahrain aluminium industry. Over the period 1976-1982 production has thus increased at an annual average rate of 6.7 per cent. Production at the Aluminium Bahrain (ALBA) smelter in 1984 was a record 177,285 metric tonnes.

Apart from hydrocarbons and aluminium, the other major industrial ventures in heavy industry are the Arab Iron and Steel Company (AISCO) and the Arab Shipbuilding and Repair Yard (ASRY). AISCO's iron pelletizing plant is converting imported iron ore into iron oxide pellets for export. The plant is expected to produce 2.5 million tonnes in 1985, while its installed capacity will reach 4 million tonnes a year during 1986. ASRY has reported losses each year since 1977. The yard is large enough to accommodate four vessels for repairing work. During 1983, more steel was used in land work than ship repair as a result of continued losses. ASRY is trying to diversify its spare workshop space for steel fabrication, directed especially towards the domestic market. The opening of Dubai's three dry docks during 1983 is some cause for concern for ASRY. It is estimated that there are at least 60 vessels in the Iran/Iraq war zone which would require repairs. Should the war end, Bahrain will find enough business to support its ship-repairing yards.

Bahrain's production of natural gas during 1983 totalled 186 billion cubic feet. Gas reinjection is primarily destined for boosting crude production. Associated gas is supplied to the Bahrain National Gas Company (BANAGAS). Its liquified petroleum gas plant was opened in 1979 with a nominal capacity of 110 million cubic feet per day, capacity is expected to reach 170 million cubic feet per day by mid-1986. BANAGAS exported 2,760 b/d propane and 2,360 b/d butane in 1984, mostly to Japan.

Bahrain's heavy industry base is continuing to expand. The growth of heavy industries has given a fillip to several downstream activities. Downstream activities had a share of 12 per cent of manufacturing output in 1982. They include fabrication of aluminium powder, cable for electrical transmission, and extrudding billet. In general, manufacturing activities appear to hold the objective of transforming Bahrain into a processing depot within the Gulf.

An expansion of heavy industry is being undertaken at present with the construction of four new plants. These are the Gulf Petrochemical Industries Company (GPIC) petrochemical complex on Sitra Island, the Arab Iron and Steel Company (AISCO) iron pelletizing plant, the Gulf Aluminium Rolling Mill Company (GARMCO) and the Heavy Oil Conversion Company (HOCC) hydrocracking plant. Gulf Petrochemical Industries Company (GPIC), with $450 million ammonia and methanol complex has gone into pilot production in 1985. GPIC is jointly owned by Bahrain, Kuwait and Saudi Arabia and when its plant is completed in early 1986 it should produce 1,000 tons a day of both methanol and ammonia. AISCO is due to convert 4 m t/y of iron ore into pellets for steelmaking. The iron ore for the plant will have to be imported, and AISCO is discussing the provision of supplies from companies in Brazil, Peru, India and Australia. There is no market for iron pellets in Bahrain, and the viability of the project is based on a forecast of increasing regional demand. A natural customer would be the Qatar Steel Company.

The third project, GARMCO has been financed by the Gulf Co-operation Council (GCC) states (excluding the UAE) and Iraq and is due for completion in late 1985. The rolling mill, sited beside Aluminium Bahrain (ALBA) at Sitra, will have a capacity of 40,000 t/y which will be reached by 1989, rising from an initial output of 19,000 t/y. The largest market for GARMCO's output is expected to be the GCC, accounting for 60 per cent of total output, two thirds of which would go to Saudi Arabia. The establishment of GARMCO is also expected to generate more downstream activities. The HOCC hydrocracking plant will convert fuel oil to lighter, higher value products and have a capacity of 80,000 b/d. It has been financed by Bahrain, Kuwait and Saudi Arabia. The plant was expected to be completed in 1988. It has, however, been indefinitely postponed in late 1984.

Bahrain manufacturing may thus be characterized by a high level of capital intensity on the one hand and a significant dependence on export markets on the other. Moreover, much of the newly planned investment is expected to come from the surrounding Gulf countries - Saudi Arabia in particular. This is likely to increase both capital intensity and export orientedness. Given Bahrain's relatively small population and the current emphasis on restricting migration, it seems likely that small- and medium-scale industries oriented to serving the domestic market will not increase their role within the manufacturing sector.

However, the Government acknowledges the need for promoting light manufacturing industries. Bahrain Light Industries Company (BLICO) has started operations in 1984 at its furniture factory with an initial investment of $9.9 million. It produces doors, partitions and furniture for offices, schools and private homes. The factory has the production capacity of 65,000 pieces of furniture a year, worth some $13.3 million.[1/] Traditional industrial activities, such as boat building, fish processing, weaving and pearling, continue. Factories producing soft drinks, tiles, plastics, concrete blocks, etc. have also been established. Bahrain is trying to revive its once-flourishing pearl diving industry. Recently a team of marine biologists found that the oyster beds north of the island of Bahrain remain very rich. Before the discovery of oil, the oyster-rich beds were Bahrain's main source of work and income.

An analysis of structural change in the composition of manufacturing value added (MVA) is confined to three major industrial branches, namely, industrial chemicals, petroleum refineries and non-ferrous metals. The value-added component of other subsectors in total MVA is either meagre to the extent of being negligible or data pertaining to other manufacturing activities are hardly available. Table 2 suggests the rapid pace of structural transformation within a ten-year period 1973-1982. The share of petroleum refineries in total MVA suffered a sharp decline from 77.9 per cent

---

1/ Robin Allen, Bahrain: Special Report, Middle East Economic Digest, Ltd., September 1984, p. 50.

in 1973 to 35.9 per cent in 1982, and that of industrial chemicals rose from 14 per cent to 56.6 per cent during the same period, despite contraction of this subsector during 1976-77. The share of non-ferrous metals accounted for 7.5 per cent of MVA in 1982. Industrial structural change seems to point to a new direction for the country's industrialization drive. Though the non-oil sector is expanding rapidly, Bahrain's economy will continue to remain dependent on oil because of huge investments already made in refining.

Table 2. Composition of manufacturing value added, 1973-1982
(at 1975 prices)

(percentage)

Year	Industrial chemicals	Petroleum refineries	Non-ferrous metals
1973	14.0	77.9	8.1
1974	22.4	69.5	8.1
1975	40.9	44.1	5.9
1976	24.2	66.6	9.1
1977	16.0	75.4	8.6
1978	42.5	51.2	6.2
1979	41.4	52.2	6.4
1980	48.6	45.7	5.7
1981	49.2	45.3	5.5
1982	56.6	35.9	7.5

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

Note: Total manufacturing is the sum of the available components and does not necessarily correspond to ISIC 300 total.

2.2 Performance and efficiency

Manufacturing employment grew from 4,069 persons in 1971 to 11,354 in 1981 - an average annual rate of over 10 per cent. The total number of persons employed in manufacturing at end-1982 stood at 16,455 out of a total labour force of 92,157, accounting for 17.8 per cent. In 1985 employment in manufacturing fell to 14,000. In the absence of time series estimates of value added and employment within the manufacturing sector it is not possible

to speculate about movements in labour productivity. Some indications of industrial efficiency may be obtained by looking at rates of return of industrial companies.

Profits have declined in the petroleum refinery due to the need to use a larger proportion of imported crude. The Bahrain refinery currently imports 80 per cent of its crude oil from Saudi Arabia. This proportion is expected to rise because Bahrain's own crude reserves will probably be exhausted over the next 20 years - Bahrain's oil well yield has declined from a peak of 77,000 b/d in 1970 to 40,000 b/d during 1985. There has been a sustained decline in the refining to production ratio in the petroleum industry in Bahrain since 1977. After 1981 this has been associated with growth in capacity underutilization. In response to declining domestic production and rising competition from other refineries established in the Gulf, Bahrain initiated a major retrenchment plan to cut expenditures by $1 million monthly during 1983.

The Bahrain Petroleum Co. (BAPCO) refinery which employs 3,000 persons, a high proportion of whom are Bahrainis, has been making losses because it buys the balance feedstock - not provided by the Dukhan field - from Saudi Arabia at OPEC prices and sells its products at market prices that are determined by much lower spot levels. Production in March 1985 was 190,000 b/d against an average of 202,000 b/d in 1984. The recent cut in the price of Saudi crude seems to have eased the strain.

Bahrain National Gas Co. (BANAGAS) has been enjoying a guaranteed sale of its every barrel of condensate because of a long-term agreement with Caltex to market propane and butane. Production of propane was around 2,760 b/d and butane, 2,360 b/d in 1984. Demand increases continue to put pressure on output. Bahrain's increasing dependence on desalination plants is likely to make an impact on long-term demand for gas.

Favourable market conditions gave a good initial stimulus to the Gulf Petrochemical Industries Company (GPIC) when the company was set up in 1979. Two or three years later GPIC found itself in a buyer's market for goods and services. However, GPIC saved $50 million and additional savings of around

$25 million on the original $450 million budget. With the aid of managerial assistance provided by Saudi Arabia and Kuwait, GPIC began to succeed in a seller's market.

Aluminium Bahrain (ALBA), which began operations in the mid 1970s, had a healthy financial performance until the early 1980s. In 1982 when international prices of aluminium fell both ALBA and the company responsible for marketing ALBA's product internationally - the Bahrain Saudi Aluminium Marketing Company (BALCO) - made substantial losses, largely due to the decision to maintain production at full capacity. This meant that some output had to be sold at below cost. In its 14 years of operation ALBA has made a loss only once, in 1982, and today the company is in fine shape to take advantage of the anticipated increase in aluminium prices in coming years.

Returns for other relatively smaller manufacturing companies have been somewhat erratic. Thus Bahrain Aluminium Extrusion Co. (BALEXCO) - specializing in the production of window and door frames - made modest gains in 1980 and 1981, substantial losses in 1982 and is reputed to have made a recovery following Saudi Arabian agreement to abolish a 20 per cent tariff on aluminium products. In 1983, MIDAL - a producer of aluminium cable conductors - had a good financial performance in 1981 and 1982 and is currently contemplating a doubling of its production capacity. Bahrain Atomisers International - main product, aluminium powder - is, on the other hand, currently operating at 50 per cent of its capacity.

The Arab Shipbuilding and Repair Yard (ASRY) has reported losses since it started to function in 1977. In 1982 it achieved 89 per cent occupancy, drydocking 49 vessels and repairing 25 more alongside. With revenues of $32 million ASRY was about to reach breakeven point during 1981-82. As a result of oil glut and the Gulf war, the ship-repairing industry continues to be in a depressed state. To avoid loss in future, the ship-repairing industry in Bahrain has embarked on a new strategy to diversify its activities, i.e., to accept fabrication orders. This new devise contributed a third of 1984's gross revenue of $16.6 million.[1/]

1/ Financial Times, Monday, July 22, 1985.

For the Arab Iron and Steel Company (AISCO), the first ship bringing iron ore from Kudremuth in India went aground. A 4 million t/y pelletizer was inaugurated on schedule, on December 12, 1984. In mid-1985 AISCO was closed for 2 weeks with unsold stocks. The survival of the Company depends largely on the willingness of its mainly Kuwaiti and Pan-Arab shareholders to support it, and on an improvement in the world steel market.

The performance of Bahraini manufacturing enterprises has depended crucially upon the external sector. Trade has thus played an exceptionally important part in sustaining Bahrain's manufacturing sector. The manufacturing sector's trade performance is analyzed in the next section.

2.3 Trade in manufactures

The share of manufactures[1/] in total exports rose from 16.52 per cent in 1970 to 82 per cent in 1982. The share of manufactured imports[1/] in total imports rose from 26.0 per cent in 1970 to 46 per cent in 1982. This proportion tended to fluctuate over the years. Thus in 1980 the manufacturing import share was only 34 per cent due to the massive increase in oil prices during 1979 and 1980. Over the period 1972-1984 the main non-oil exports were aluminium products and machinery and transport equipment. Table 3 shows that these two sub-sectors increased their share of total non-oil exports from 61.4 per cent in 1972 to 91.3 per cent in 1984. Miscellaneous manufactured articles - representing products originating in the medium sized establishments - are other important sources of export growth. However, their relative share declined from 19.6 per cent to only 4.4 per cent during 1972-1984. Bahrain's export success thus depends crucially upon the aluminium and petroleum refining industries.

Appendix Table A-4 shows that European and North American countries bought only 8.0 per cent of Bahraini exports in 1984. The Arab countries accounted for a larger proportion - 43.6 per cent. In 1983 Japan overtook

---

1/ Based on the definition of trade in manufactures covering a list of 148 specially identified SITC 3-digit or 4-digit codes comprising a wide range of processing stages of manufactured goods.

Table 3. Composition of non-oil exports, 1972-1984
(in millions of Bahraini Dinars)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Food and live animals	6.5	7.6	7.9	4.9	8.2	8.4	6.1	10.0	5.6	3.8	3.8	2.6	3.8
Beverages and tobacco	0.9	1.3	1.5	1.9	2.6	2.4	2.8	10.6	9.2	5.5	3.0	2.2	1.5
Manufactures, classified mainly by materials	22.2	34.3	39.7	47.0	64.0	66.4	85.4	96.1	74.3	96.5	120.8	134.1	115.0
Machinery and transport equipment	6.0	4.8	8.7	13.1	35.1	44.2	30.2	41.9	41.3	41.3	94.9	74.2	27.1
Miscellaneous manufactured articles	9.0	9.5	11.7	15.1	22.9	32.1	17.3	10.9	13.5	22.0	14.3	11.4	6.8
Other unclassified	1.3	1.6	2.2	2.0	3.8	4.1	5.3	4.9	6.5	5.5	5.4	5.9	1.3
Total	45.9	59.1	71.7	85.0	136.6	157.6	147.1	174.4	150.4	174.6	242.2	230.4	155.5

Sources: Ministry of Finance and National Economy, and Statistical Bureau;
Bahrain Monetary Agency - Quarterly Statistical Bulletin, various issues.

Note: The years 1972 through 1977 exclude gold and silver, while other years listed include it.

Table 4. Composition of non-oil imports, 1972-1984
(B.D. million)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Food and Live Animals	14.9	19.6	24.9	24.5	39.1	42.8	51.2	59.1	73.3	60.3	70.2	73.6	83.3
Beverages and Tobacco	2.9	4.0	4.6	6.0	8.6	10.2	10.9	17.6	15.0	15.3	14.1	14.0	17.3
Chemicals	13.1	16.0	14.8	18.5	22.0	30.9	39.0	49.9	50.1	60.4	57.7	53.7	60.0
Manufactured Goods Classified as materials[a/]	26.7	29.2	48.1	57.0	96.1	106.3	101.7	97.9	130.5	137.6	147.8	151.8	143.8
Machinery and Transport equipments	30.5	36.1	52.5	86.0	155.1	161.0	171.4	164.7	196.7	222.5	260.0	313.8	288.3
Miscellaneous Manufactured Articles	15.7	18.4	23.5	33.0	49.6	76.3	61.8	59.2	66.6	86.5	84.5	84.6	84.0
Other	3.0	4.7	7.6	7.8	16.6	17.4	10.5	9.8	13.9	14.4	17.3	17.9	2.2
Total	106.8	128.0	176.0	232.9	387.6	444.9	446.5	457.6	546.1	597.0	651.6	709.4	678.9

Source: Central Statistical Organization, Cabinet Affairs, Ministry of Development and Industry, Bahrain Monetary Agency, various issues.

a/ Including alumina imports.

Saudi Arabia as the biggest purchaser of Bahraini non-oil exports. Japan's share of non-oil Bahraini exports has increased from 18.8 per cent in 1976 to 24.8 per cent in 1983. Saudi Arabia's share has fallen from 49.9 per cent to 20.2 per cent over the same period.

Manufactured goods, machinery and transport equipment and miscellaneous manufactured products make up 85 per cent of total non-oil imports and exports. This partly reflects Bahrain's entrepot character - a large proportion of imports are reexported to Saudi Arabia and other Gulf countries. It also reflects the dependence of the Bahraini manufacturing sector on imported inputs.

Table 5 illustrates the geographical origin of Bahrain's non-oil imports. The main sources of manufactured imports to Bahrain are the developed market economy countries. The Arab countries are of relatively minor significance in this context. In 1984, 12 main developed market economy countries provided over 80 per cent of Bahraini imports. In 1976 this share was 72.1 per cent. Saudi Arabia's share is less than 1 per cent in each of the years except 1976. The rapid growth of investment co-operation between Bahrain and her Gulf neighbours could take into account this character of the integration as reflected in the structure of Bahrain's manufactured exports and imports.

Table 6 presents the shares and growth rates of exports and imports classified according to level of processing. Bahrain's major export category continues to be processed goods for final use, despite its falling share in total exports. It grew at an average annual rate of 51 per cent during 1970-75, but registered a negative growth rate of 0.73 during 1975-82. Mineral fuels and lubricants are the major items in this category. The share of processed goods for further processing increased from 6.34 per cent in 1970 to 14.31 per cent in 1982. A significant growth in the exports of processed goods for further processing lends credence to the fact that Bahrain could further expand its capacity in processing goods both for further processing. But expansion of this field of manufacturing activity primarily depends on external demand.

Table 5. Non-oil imports by country of origin, 1978-1984
(in thousands of Bahrain dinars)

Country	1978	Percentage share	1979	Percentage share	1980	Percentage share	1981	Percentage share	1982	Percentage share	1983	Percentage share	1984	Percentage share
United Kingdom	90,182	19.9	82,720	17.6	90,059	16.0	93,305	15.2	98,098	14.8	104,953	14.6	96,160	13.6
United States	53,651	11.8	76,758	16.4	100,109	17.8	137,613	22.4	133,271	20.0	87,695	12.2	98,669	14.0
Japan	65,260	14.4	64,772	13.8	98,441	17.5	96,660	15.7	105,172	15.8	158,964	22.1	131,443	18.6
China	8,139	1.8	6,032	1.3	6,339	1.1	7,089	1.2	6,404	1.0	6,574	0.9	5,202	0.7
Italy	17,590	3.9	19,571	4.2	16,766	3.0	18,949	3.1	22,399	3.4	48,945	6.8	83,326	11.8
West Germany	36,754	8.1	25,755	5.5	20,013	3.6	25,531	4.1	45,604	6.9	61,719	8.6	42,162	6.0
Australia	25,592	5.6	38,950	8.3	43,006	7.6	49,042	7.9	46,855	7.0	40,225	5.6	44,271	6.3
Netherland	9,383	2.1	11,955	2.5	10,647	1.9	11,373	1.8	17,961	2.7	23,809	3.3	24,378	3.5
France	10,828	2.4	18,481	3.9	18,959	3.4	17,618	2.8	22,719	3.4	30,682	4.3	18,278	2.6
India	12,397	2.7	9,292	2.0	14,841	2.6	10,960	1.8	10,742	1.6	10,218	1.4	13,090	1.9
Saudi Arabia	4,286	1.0	4,316	0.9	2,510	0.5	2,320	0.4	6,141	0.9	4,824	0.7	5,967	0.8
Singapore	9,560	2.1	8,587	1.8	10,972	1.9	16,793	2.7	8,454	1.3	8,684	1.2	8,733	1.2
Formosa Tiawan	5,551	1.2	5,736	1.2	7,813	1.4	7,885	1.3	8,968	1.3	9,911	1.4	9,817	1.4
Hong Kong	9,036	2.0	7,360	1.6	7,829	1.4	9,172	1.5	7,294	1.1	5,780	0.8	5,199	0.7
South Korea	19,297	4.3	15,240	3.2	22,526	4.0	25,839	4.2	26,506	3.9	10,358	1.4	11,498	1.6
Sweden	3,956	0.9	2,852	0.6	4,133	0.7	2,932	0.5	4,052	0.6	6,812	0.9	-	-
Belgium	4,421	1.0	3,688	0.9	6,443	1.1	4,339	0.7	5,683	0.9	6,262	0.9	2,162	0.3
Denmark	3,682	0.8	4,241	0.9	5,480	1.0	7,148	1.2	7,846	1.2	8,903	1.2	8,499	1.2
Iran	5,317	1.2	10,716	2.3	2,110	0.4	911	0.1	645	0.1	1,040	0.1	1,326	0.2
Pakistan	3,357	0.7	2,293	0.5	9,852	1.7	5,481	0.9	4,948	0.7	6,349	0.9	6,225	0.9
Lebanon	1,561	0.3	1,769	0.4	2,050	0.4	2,957	0.5	3,233	0.5	3,706	0.5	3,556	0.5
Switzerland	5,324	1.2	3,028	0.6	5,680	1.0	6,975	1.1	12,352	1.9	6,141	0.8	5,668	0.8
Other Countries	48,221	10.6	45,172	9.0	56,538	10.0	54,638	8.9	59,686	9.0	67,887	9.4	80,832	11.4
TOTAL	453,344	100	469,311	100	563,116	100	615,530	100	664,033	100	720,441	100	706,491	100

Source: Bahrain Monetary Agency, Quarterly Statistical Bulletin, various issues.

Table 6. Shares of exports and imports classified according to level of processing, 1970 and 1982, and trend growth rates, 1970-1975 and 1975-1982

	Exports				Imports			
	Class share of total (percentage)		Class growth rate (percentage)		Class share of total (percentage)		Class growth rate (percentage)	
	1970	1982	1970-1975	1975-1982	1970	1982	1970-1975	1975-1982
A : Non-processed goods for further processing	0.62	16.68	20.26	46.38	2.34	52.70	13.29	76.22
B : Processed goods for further processing	6.34	14.31	58,81	12.94	11.73	7.87	23.24	22.65
C : Non-processed goods for final use	3.10	1.16	23.31	-6.86	5.92	1.92	18.48	17.22
D : Processed goods for final use	89.93	67.85	51.08	-0.73	80.01	37.51	29.57	12.55
	1970		1982		1970		1982	
Sum of classes: A+B+C+D in 1,000 current US$	172,408		3,582,653		166,656		3,607,321	
Total trade SITC 0-9 in 1,000 current US$	235,934		3,582,798		168,266		3,615,363	

Source: UNIDO data base; information supplied by the United Nations Statistical Office, with estimates by the UNIDO Secretariat.

Note: Calculations are based on current US dollar prices. Sum of classes and total trade figures should be identical. Discrepancies or zero values are due to lack of countrys' trade reporting in general, but especially at the 3-, 4- and 5-digit SITC level.

On the import side, non-processed goods for further processing rose from 2.34 per cent in 1970 to 52.70 per cent in 1982, while other categories recorded sharp declines. Judging by all past development experience, uncertain demand for hydrocarbons and given the factor endowments of Bahrain, manufacturing activities could be attuned largely to the production of intermediate rather than finished goods in the future course of the country's industrialization drive. However, this alternate engine of growth in Bahrain's manufacturing sector may be on a low gear due to huge investments already made on refining industries which process crude oil for final use.

2.4 Ownership patterns and geographical distribution

Industrial investment has been rising rapidly in Bahrain. The Government has played an active promotional role in industrialization. The main consideration determining the Government's involvement in the industrial sector is a desire to supplement private enterprise particularly where large initial investments are necessary.

The Government has a share in most manufacturing enterprises. It has a majority share in Aluminium Bahrain (ALBA). Bahrain Aluminium Extrusion Company (BALEXCO) is wholly owned by the Government. It also has a majority holding in Bahrain Atomisers International and participates on a minority basis in MIDAL. The Government has also expanded its ownership in the oil refining sector.

In 1978, the Bahrain Government took over local oil product marketing and distribution and in December 1979 oil and gas exploration and production. All these operations were previously handled by the Bahrain Petroleum Company (BAPCO), a Caltex subsidiary in which the Bahrain Government acquired a 60 per cent share in 1975. In addition, Caltex holds a 12.5 per cent share in the Bahrain National Gas Company (BANAGAS), which has operated a gas gathering and treatment complex for associated gas from Bahrain's oil-fields since the end of 1979. It is also owned by the Bahrain National Oil Company (BANOCO) with 75 per cent and the OAPEC-sponsored Arab Petroleum Investment Corporation (APICORP) with 12.5 per cent shares.

The Bahrain Government opened negotiations in May 1980 on the purchase of shares in the Caltex-owned refinery in Bahrain. The Government is seeking a 60 per cent to 75 per cent participation in the 250,000 b/d plant, which processes all Bahrain's crude oil ouput of around 40,000 b/d as well as 200,000 b/d of Saudi crude.

The Government of Bahrain applied a multistage scheme to take total control of the oil products' marketing and distribution facilities. In 1976 the Government share was already 60 per cent of the Bahrain Petroleum Company (BAPCO). To manage its 60 per cent share in BAPCO, the Bahrain Government created in February 1976 the Bahrain National Oil Company. Later, on 16 December 1976, product marketing for distribution rights were transferred from BAPCO to BANOCO. The Government also has a major share in the Bahrain Ship Repairing and Enginering Company (BASREG) and in the Arab Ship Repairing Yard (ASRY).

The Gulf countries participate with both equity and loan capital in ASRY and a number of projects within the aluminium and petroleum refinery sector. They are also heavily involved in the development of a steel and petrochemical industry. All the major industrial projects envisaged for the rest of the decade depend crucially upon continued support from the neighbouring Gulf countries.

The private sector dominates the small and medium sized light engineering and downstream aluminium production. It is also associated with public investment in a wide range of projects. Private sector development in primary industries and downstream activities will receive a fresh impetus, when the causeway linking Bahrain and Saudi Arabia will make profound changes in the business climate in Bahrain.

An important characteristic of the industrial ownership pattern is the gradual displacement of non-Gulf equity capital. Ownership by transnationals remains important in the petroleum refining and the ship-repairing industry. However, investment by Arab countries has since 1980 overshadowed both the traditional foreign sector and Bahrain government investment.

The distribution of industrial units is not particularly uneven given the heavy concentration of the islands' population. Most light industry is located near the Mina Sulman port on Bahrain island proper. The aluminium smelter is located on this island. ASRY is connected to Muharraq island. Sitra island contains the oil refinery and a water desalination plant. The emphasis on the rapid growth of heavy capital goods industry is unlikely to facilitate a wider dispersion of industrial units.

3. INDUSTRIAL PLANS, OBJECTIVES, STRATEGIES AND INSTITUTIONS

3.1 Plans and strategies

Despite the existence of a relatively informal industrial policy framework, the Government of Bahrain has played an important part in sustaining the country's industrial development. It is a large investor in key industrial projects. As noted earlier, its main instrument of economic intervention is the bi-annual budget. Appendix Tables A-1 and A-2 describe the structure of budget revenue and expenditure.

It can be seen that over the period 1978-1985 the main budgetary source of revenue has been the oil sector. Its share in Government revenue has risen from 58 per cent in 1978 to 75 per cent in 1985. Government expenditure on development projects remained stable over 1979-1982 but has declined substantially in real terms since 1982.

In 1982 Bahrain launched the First Four-Year Development Programme to cover the period 1982-1985. This represents the first major attempt at medium-term planning.

The programme's main objectives have been defined as follows:[1/]

1. To broaden the economic base by expanding and diversifying economic activities.

2. To increase production, particularly of agricultural livestock in order to achieve a reasonable degree of self-sufficiency in vegetables, milk products, meat and fish by reducing dependence on basic goods imports.

1/ State of Bahrain, Ministry of Finance and National Economy, Directorate of Planning and Economic Affairs, The Four-Year Programme of Economic and Social Development for the years 1982-1985, Government printing house, Ministry of Information, Bahrain, p. 4.

3. To improve and expand social services in education, health and housing.

4. To rationalize consumption and encourage saving and investment in order to further invest in production and generalize development and progress.

5. To achieve complimentarity and balance among the different sectors of the economy.

Investment and implementation priorities are as follows:

1. Top priority is accorded to the completion of ongoing projects;

2. Emphasis is put on productive projects and infrastructure projects such as water, electricity, housing, clothes, airport, sea-ports and communications;

3. In the third place, priority is given to the improvement and expansion of social services, particularly education and training, public health and education geared towards development;

4. Finally, encouragement is given to research and surveying to identify and develop further national material and human resources.

The total cost of the Four-Year Programme of Economic and Social Development for the years 1982-1985 amounts to BD 856 million sub-divided among the various economic sectors of the four years of the programme as indicated in Table 7.

In addition a programme amounting to BD 11 billion has been sanctioned for investment in joint ventures in association with the Gulf countries. The most important of these are the Bahraini Saudi Arabia causeway, expansion in the activities of major existing companies and enterprises such as the Bahraini National Petroleum Company, Aluminium Bahraini Company (ALBA), the Arab Shipbuilding and Repair Yard (ASRY) on the project of fuel transformation into light products, the Gulf Petrochemical Industries Company, the Bahraini

Table 7. Bahrain: economic and social development programme, 1982-86[a/]

(BD Million)

	1982[b/]	1983[c/]	1984[c/]	1985[c/]	1986[c/]	Sectoral total	Percent of total
Intrastructure:	122.7	204.5	184.1	126.0	49.3	686.6	71.7
Electricity	44.3	62.7	57.5	43.5	11.0	219.0	22.9
Water and sewage	29.9	52.6	52.5	27.3	16.7	170.0	18.7
Housing	25.5	39.4	51.2	40.0	8.7	164.8	17.2
Roads	10.7	18.3	11.7	8.5	5.4	54.6	5.7
Ports and airport	6.4	18.1	5.4	3.4	3.7	37.0	3.9
Other	5.9	13.4	5.8	3.3	3.8	32.2	3.4
Social services:	15.8	21.2	16.8	27.6	28.4	109.8	11.5
Education	7.4	10.6	7.1	9.4	8.6	43.1	4.5
Health	3.7	3.7	2.1	6.6	9.0	25.2	2.6
Other	4.7	6.9	7.6	11.6	10.8	41.5	4.3
Economic services:	3.3	8.8	10.5	11.6	11.9	46.1	4.8
Agriculture	2.2	3.7	2.6	3.4	7.6	19.5	2.0
Industry	1.1	3.5	6.4	5.7	1.8	18.5	1.9
Other	-	1.6	1.5	2.5	2.5	8.1	0.9
Administrative services:	22.5	12.3	15.1	19.6	7.3	76.8	8.0
Defence and security	21.4	9.7	10.2	9.3	3.3	53.9	5.6
Other	1.1	2.6	4.9	10.3	4.0	22.9	2.4
Other:	10.4	12.9	5.3	5.0	5.0	38.6	4.0
Total	174.7	259.7	231.9	189.7	101.9	957.9	100.0

Source: Ministry of Finance and National Economy, Manama, Bahrain's Development Programme, in Middle East Economic Digest (MEED), Vol. 27, No. 47, London, 25 Nov. - 1 Dec. 1983.

a/ Figures not available for 1987, the programme's final year.
b/ Actual expenditure.
c/ Budgeted expenditure.

Company for Wire and Wireless Communications, the Flour Mill Company, and the New Arab University.

In addition, the volume of current expenditures during the programme period will exceed another one billion dinars. This means that the total expenditures of the four years 1982-1985 is estimated at about 3 billion dinars (1982 prices). This investment is expected to lead to a real increase of 6 per cent in national income and to increase employment by 4.5 per cent per annum.

The share of the industrial sector in development expenditure depends crucially upon the implementation of the joint venture projects in the steel, petrochemical, aluminium, and refining sectors currently being planned. The First Four-Year Plan envisages the provision of major infrastructure support to these projects. The 1984-1985 Development Programme has allocated a sum of BD 20.9 million to the Ministry of Industries and Development for the development of industrial estates, and the establishment of a quality control and standardization office.

Renewed emphasis has been placed on the development of industrial estates which had multiplied in Bahrain since the early 1960s. An amount of BD 11.3 million was allocated to develop the Shamal Sitra industrial estate during the years 1982-1985, BD 1 million was allocated for the development of Al-Maameer industrial estate. Similarly the Janoub Alba industrial estate and the Abu Ghazal industrial estate were allocated respectively the sums of BD 265,000 and BD 337,000. Finally, a new industrial estate Um-Alhassum has been developed during 1983.

The following Table shows the distribution of industrial estates allocations for the years 1982-85 (in thousand Bahraini dinars):

Table 8. Distribution of industrial estate allocations, 1982-1985
(in thousand Bahraini dinars)

	1982	1983	1984	1985
1. Shamal, Sitra, Industrial Area Development	185	3,105	1,852	424
2. Al-Maameer	649	31	-	-
3. Refinery Project	239	11	-	-
4. Janoub Alba Ind. Region	170	9	-	-
5. Abu Ghazal	218	11	-	-
6. Ind. Region Janoub Alba	-	310	847	770
7. Um-Alhassum Development	-	509	-	-
8. Shamal Sitra Development	-	-	-	1,026
TOTAL	1,461	3,986	2,699	2,220

Source: Bahrain, Ministry of Finance.

Note: Figures are deflated to 1978 prices. An average rate of inflation for the period is assumed to be 10 per cent.

3.2 Recent industrial developments

The year 1985 is an important landmark in Bahrain's industrial development with the commissioning of three major projects and the completion of the causeway construction work. These will do much to bridge the gap between industries and open the way to greater private-sector participation.

The pelletization plant built by the Iron and Steel Co. (AISCO), a private venture between shareholders in Kuwait, Iraq, Jordan and Bahrain, is going through trial runs prior to commercial production (Table 9). The Gulf Acid Industries Co. has commissioned a 10,000-ton-per-year sulphuric acid plant. The aluminium rolling mill built by the Gulf Aluminium Rolling Mill

Co. (GARMCO) seems to have gone into commercial production by November 1985. The Gulf Petrochemical Industries Co. is due to start up its methanol plant before the end of 1985. These projects would create opportunities for downstream industries in the private sector.

A range of independent local manufacturing companies are in operation on designated industrial sites. Products made by these firms include paints, concrete blocks, air conditioners and bedding. A private sector holding company, the Bahrain Light Industries Company (BLICO), has been established to promote a range of light manufacturing ventures. However, BLICO failed to attract the required funds from the public and is being financed by Abu Dhabi and Kuwait. A furniture factory is its first venture and the success will largely determine whether other proposed factories will be established.

Expansion of industry relies to a large extent on pan-Arab support, with Saudi Arabia being the main source of funds. Bahrain's political climate, infrastructure, supply of services, and its relatively skilled work force combine to make the island a good place to set up industry. It also has abundant supplies of natural gas which is being used in all the major projects. There is, in effect, an exchange of Bahraini land, labour and services for the capital resources of other Gulf States. Bahrain feels that there will continue to be many opportunities to supply the growing Saudi market and hopes that the causeway which links the two countries will be a significant stimulus to industrial development.

In Bahrain over the next five years $2.5 billion worth of new industrial projects are scheduled for completion. As yet there are no signs of major cutbacks in the investment programme either from the Bahraini Government or from its partners in the other Gulf States who are underwriting much of the cost. Projects may, however, be spread over a longer period of time.

Table 9. Bahrain - new investment projects in manufacturing

Name	Owners	Approximate cost	Product	Construction	Status
Arab Iron and Steel Co. (AISCO)	Arab Mining Co, KFTCIC, and Gulf Private investors	US$ 207m	4m tonnes/year of iron pellets	1884	Contractors chosen
Gulf Aluminium Rolling Mill Company (GARMCO)	Bahrain (20%), Kuwait (20%), Saudi Arabia (20%), Iraq (20%), Qatar, Oman (10%) (10%)	US$ 100m	40,000 tonnes/yr of aluminium sheet, foil	Completion by the end of 1985 or early 1986	Financing arranged, construction begun.
Bahrain Light Industries Company (BLICO)	48% Gulf Investment Co., 26% Bahrain Institutions, 26% private investors	US$ 8.5m	Wooden furniture, doors		Contractors chosen
Gulf Acids Industries	Bahrain private investors	US$ 6m	11,000 tonnes/yr of sulphuric acid	1984-1985	Tenders out

Source: Metra Consulting, Business Opportunities in the 1980s: The Gulf States, 1984.

3.3 Institutional infrastructure

A new law of industrial licensing is currently envisaged. This law involves national protection to the industry with the aim to sustain its development. A commission for the Protection of National Industries was established following a decision by the Council of Ministers. The Commission has decided to undertake its task by studying the protectionist regulations which are applied in the neighbouring countries, particularly Kuwait and Saudi Arabia. Since many of the Gulf States are applying protectionist rules which have proven to be successful, the commission has decided to consider their adoption for Bahrain after sending a field mission to those countries to acquaint itself with the legislation.

Simultaneously, under a sub-regional scheme being sponsored by the Gulf Co-operation Council (GCC) for the protection of local industry in the Gulf, Bahrain was to prepare for the GCC a national list of the industries which the country wished to protect within the GCC framework.

Bahraini industrial executives hope to obtain large benefits from the GCC guarantees for industrial protection which are under preparation, notably in the areas of tariff unification and removal of country barriers in favour of nationally based industries of the GCC states. The GCC has undertaken consultancy studies to determine opportunities and ways for developing a sub-regional market across the Gulf.

A favourable institutional framework for sustained industrial growth calls for increased access to regional assistance funded by neighbours. In recent years, which saw belt-tightening in all Gulf economies, Bahrain succeeded in attracting loans and investments as well as cash subsidies from its neighbours.

Against the background of Bahrain's major structural constraints, many Bahraini executives emphasize the need to develop, through Gulf-wide co-ordination and integration, a complimentary industrial institutional

framework which could increasingly meet the diversified demand of manufacturers in the Gulf countries.

Gulf-wide industrial institutions are of particular importance for sustaining industrial development in Bahrain. These institutions are presently in the process of establishment. The Doha-based Gulf Organization for Industrial Consulting (GOIC) - which was established in 1979 - has expressed an interest in providing technical and financial services in several projects in the aluminium sector.

National institutions for sustaining industrial development are relatively few. The Ministry of Industry and Development is responsible for the overall co-ordination and implementation of the Government's industrial strategy. The Ministry is divided into four departments concerned with: (a) industrial production and investment; (b) industrial estates; (c) the oil sector; and (d) civil aviation. Resources available to the Ministry have increased at the rate of about 10 per cent per annum since the mid 1970s. In 1979 a World Bank mission recommended the establishment of an industrial development corporation. Several proposals for establishing such institution on a Gulf-wide level are currently under consideration at the Ministerial level.

The o. resources in Bahrain are managed by the following institutions:

1. Petroleum Supreme Council, the highest authority which supervises and directs the development of the country's petroleum resources;

2. Ministry of Development and Industry, responsible for the oil and gas industry and related industries;

3. Bahrain Centre for Studies and Research, undertakes research and studies on energy conservation and alternative sources;

4. Bahrain National Oil Company (BANOCO) manages and operates oil and gas production and exploration in addition to storage and domestic marketing of petroleum products;

5. Bahrain Petroleum Company (BAPCO) operates the refinery and related facilities;

6. Bahrain National Gas Company (BANAGAS) operates the gas liquefaction plant;

7. Marketing Bureau undertakes marketing of the Government's share of refined products abroad. The bureau is attached to Bahrain's Ministry of Development and Industry.

4. RESOURCES FOR INDUSTRIAL DEVELOPMENT

4.1 Manpower

The manufacturing labour force is currently estimated at about 14,000, of which expatriate labour force represents 67 per cent. In a "modest growth scenario" the labour force would have to increase to about 25,000 by the end of the 1980s. This is essential because the emphasis on Bahrainisation requires the creation of a relatively large number of new jobs. A growth in manufacturing employment will require more technical and occupational training and the development of manpower training programmes will become necessary. Progress has been made in the Bahrainisation of employment. Bahrainis account for over half of professional and technical workers, of whom 29 per cent are women though they make up only 5.7 per cent of the total labour force in the country.

Bahrain has one of the highest literacy rates in Asia. According to the 1981 census over 70 per cent of the population was literate. Technical and vocational training is administered by the Gulf Technical College. The College offers a four-year degree course in engineering and industrial technology. A number of technical schools has also been opened. Training centres have been established within ASRY, BAPCO, ALBA, Gulf Air, the Electricity Department, Cable and Wireless Company and within the hotel and catering industry. The number of Bahraini students studying technical subjects has tripled since 1976. Currently about 30 per cent of Bahrainis studying abroad are enrolled in technical and engineering courses. Another 16 per cent are undertaking management related study programmes.

4.2 Energy

The bulk of Bahrain's crude oil production is supplied from the Bahraini field in the southern part of the island. Oil and natural gas operations are undertaken by the Bahrain National Oil Company (BANOCO). In 1970 production peaked at 76,000 b/d and then gradually declined reaching 40,000 b/d by 1985. Since 1971 signs of exhaustion have become visible; a phenomenon which is

attributable to the natural structure of the oil reservoir and the smallness of this field. As a consequence, the average daily production in 1982 was 44 thousand barrels, as against 46 thousand barrels in 1981, and 48 thousand barrels per day in 1980. Proven natural gas reserves were estimated at 223 billion cubic metres at the end of 1982. It is expected that gas reserves would last at least 50 years. Oil search goes on as output falls.

Local consumption of petroleum products increased by 230 per cent, from 1,700 b/d in 1970 to 5,500 b/d, by the year 1980, at 12.45 per cent annually. Furthermore, average consumption of oil products is expected to rise to 13,000 b/d by the year 2000. Natural gas consumption, which rose by 185 per cent from 118 million cubic feet a day (mcfd) to 327 mcfd between 1970 and 1980, is expected to further rise up to 32.34 million cu.m. by the year 2000.

At present, Bahrain produces only some 40,000 barrels of crude oil a day. The Abu-Saafa oil field, located in the offshore area separating Saudi Arabia from Bahrain, is exploited and managed by ARAMCO, a group of four U.S. oil transnational corporations that were behind the emergence of Saudi Arabia as the leading oil exporting country. Total Bahraini crude supplies to the refinery amount to approximately 90,000-95,000 barrels of crude oil a day, leaving a bigger part as a deficit in the balance of 250,000 barrels a day, required for the refinery.

In the absence of new major crude discoveries, considered as unlikely, and with the growing decline of domestic crude production and a corresponding growing deficit of the country's petroleum balance, Bahrain will continue to be a net oil importing country. Oil income is being generated by processing largely imported crude, and subsequently selling the output on export markets. This oil status is significantly different from that of all the other Gulf States, which are highly endowed with local petroleum reserves.

The Bahraini authorities are endeavouring to extend the life span of domestic oil resources while they also increasingly search for new petroleum deposits. Fishermen are being paid large lump sums to compensate for the imminent loss of certain fishing grounds in the oil search.

Natural gas production has also declined since 1980. It fell by 24.7 billion cubic feet in 1982 or by nearly 16 per cent compared with 1981. The total production in 1982 amounted to 130.5 billion cubic feet as against 155.2 billion cubic feet the previous year. This is the third year in succession when the total production fell short of the peak reached in 1979 for which the output was 176.6 billion cubic feet. The lower volume has occurred mainly due to the decreased output of non-associated gas from the Khuff Zone combined with no yield from the Arab Zone as well as some decline in the production of associated gas. It may be added that the output of the Arab Zone has exhibited a continuously declining trend over several years and for the first time in 1981 nothing was produced there.[1/]

Bahrain had domestic demand of 125 billion cubic feet of natural gas during 1979. Demand is forecast to increase to 211 billion cubic feet in 1984.[2/] This represents a growth of 11 per cent per year from 1979-1984. By 1990 domestic demand of natural gas will amount to some 394 billion cubic feet if demand is assumed to continue, increasing at 11 per cent per year from 1984 to 1990.

Although Bahrain is well endowed with gas associated to crude oil, those gas reserves estimated at 12,000 million cubic feet are relatively modest in comparison to the nine thousand billion cubic feet of dry gas with which the country is endowed. Furthermore, the recovery and the use of associated gas has to be tied to the production of crude oil.

Another important energy source is electricity. Expenditure on the generation of electricity is the largest item in the current development plan and will account for over 20 per cent of total expenditure. The largest

---

1/ State of Bahrain, Bahrain Monetary Agency, Annual Report 1981, pp. 9 and 10.

2/ OPEC Estimates in: Natural Gas/UN World Energy Supplies, Crude Oil/Oil and Gas Journal. OPEC/UNIDO/OPEC Fund Seminar on Co-operation among Developing Countries in Petrochemical Industries, Vienna, March 7-9, 1983 (Tables 10, 12, 15, 18, 24, 27 and 30).

project is the second Rifaa power station which is currently under construction. Two of the six 75mw turbines were commissioned in mid-1983, bringing present capacity up to 640mw. This will rise to 900mw when the station is completed in 1985. Demand for electricity peaked at 490mw during 1983, eleven per cent up on 1982. At that rate of growth, demand will be met by capacity until 1989 but there are plans to raise capacity by another 1,000mw by 1995. The electricity transmission network is being upgraded and the possibility of a link with the Saudi grid has been studied.

Water and sewage is the second largest item in the development plan, accounting for BD179m - 19 per cent of total expenditure. Water consumption during 1983 reached just under 40m gallons per day (g/d) and, with desalination supply only 5m g/d, is having serious effects on the underground aquifer. Fears that the aquifer will become irreversibly saline have prompted the Government to restrict pumping in some areas, introduce water charges and speed up construction of desalination plants. An extension is being built to the present desalination plant at Sitra and will raise capacity by 20m g/d. A further ten million g/d will be supplied from another plant at Ras Abu Jarjar which should be completed in late 1984, but a 10m g/d Saudi sponsored multi-stage flash plant at Dur is being delayed because the necessary infrastructure has not yet been completed. At the Tubli sewerage plant, recycled effluent is providing 12m g/d of water for agricultural use. With completion of these projects, the Government hopes to reduce the dependence on the aquifer from 85 to 15 per cent of domestic demand.

4.3 Agriculture and fisheries

Agricultural resources are relatively scarce - agriculture's contribution to GDP is currently about 1 per cent. The Government has been encouraging egg and poultry production - hoping to achieve self sufficiency in eggs by end-1985. Dairy production is also expected to increase significantly. The Government has also invested in the local fishing industry. With plans for a farming revival, agriculture is about to get a facelift despite the island's limited resources.

Agriculture gets a new lease of life in recent years. Agricultural schemes received $69 million in the 1982-85 Development Plan. At Budaiya, new techniques for glasshouse cultivation have been developed by the Food and Agricultural Organization. A large datte-(single-stoned fruit) processing factory is being built near Mina Sulman which is designed to dry and freeze about 1,500 tonnes of fruit a year. Its trial operation commences in 1986. About $1.1 million is to be spent on a major pasteurization plant at Hawat Ali, west of Isa town. The Government is also trying to upgrade locally-grown cattle fodder through research and improvement in irrigation schemes.

4.4 Financial resources

Industrial financing depends upon foreign capital inflows, government investments and reinvestment of profits by the private sector. The main source of investment for the new industrial projects is capital - from both the public and private sectors - from the neighbouring Gulf States. Government investments are financed from oil receipts and from other tax and non-tax revenues - the Government still obtains over 60 per cent of its total revenue from the oil sector and a decline in oil production is likely to have serious consequences for industrial financing. On average oil sector receipts are expected to contribute 28 per cent of total government revenue in the First Four-Year Plan period.

Bahrain's access to huge commercial deposits was largely due to a decade of dazzling growth achieved by Offshore Banking Units (OBUs). Assets of the 77 OBUs amounted to $62,400 million at the end of June 1983. But their income sharply eroded in 1984 as a result of continued economic downturn in the Gulf region and Saudi Arabian Monetary Agency's (SAMA) decision to protect the Saudi riyal. Currently OBUs have assets to the tune of $63 billion. The Bahraini OBUs are larger than Singapore's financial community and about equal to Hong Kong. Since OBUs function more as Gulf financial centre, they play limited role in industrial financing.

In short, the twin sources of industrial investment in Bahrain in the near future are likely to be Gulf capital inflows on the one hand and oil revenues on the other. Currently Saudi aid to Bahrain amounts to about

$1 billion annually. This will have to rise substantially - as will inflows from other Gulf countries - if the $2.5 billion worth programme of industrial projects is to be undertaken as planned. Moreover this also requires the maintenance of the existing levels of the international prices of Bahrain's petroleum exports.

APPENDIX A

STATISTICAL TABLES

Table A-1. State budget, sources of revenue, 1978-1985[a/]
(in thousand dinars)

Year	Oil Sector revenues	Government duties and taxes	Governmental services' receipts	Miscellaneous receipts	Total
1978	161,800	33,200	18,500	66,500	280,000
%	58%	12%	6%	24%	100%
1979	160,750	36,500	26,250	56,500	280,000
%	57%	13%	10%	20%	100%
Rate of Growth 1978-1979	- 0.65	10%	41%	- 15%	0%
1980	228,600	37,500	23,850	39,050	329,000
%	70%	11%	7%	12%	100%
Rate of Growth 1979-1980	42.2%	2.7%	- 9%	-30.8%	17.5%
1981	245,050	39,850	27,350	38,750	351,000
%	70%	11%	8%	11%	100%
Rate of Growth 1980-1981	7.2%	6.3%	14.5%	-0.8%	6.7%
1982	416,500	43,000	34,000	66,500	560,000
%	74%	8%	6%	12%	100%
Rate of Growth 1981-1982	70%	7.9%	24.3%	71.6%	60%
1983	498,000	45,500	38,000	64,500	646,000
%	77%	7%	6%	10%	100%
Rate of Growth 1982-1983	19.6%	5.8%	11.8%	-3%	15.4%
1984	549,000	48,000	43,000	70,000	700,000
%	77%	7%	6%	10%	100%
Rate of Growth 1983-1984	10.2%	5.5%	13%	8.5%	8.4%
1985	188,000	53,000	49,000	70,000	760,000
%	78%	7%	6%	9%	100%
Rate of Growth 1984-1985	7.1%	10.4%	14%	0	8.6%
Rate of Growth 1978-1985	20.2%	6.9%	14.9%	0.7%	15.3%

a/ Ministry of Finance and National Economy, "The Four-Year Programme of Economic and Social Development for the Years 1982-1984", Bahrain, p. 10

Table A-2. State budget, items of expenditure, 1978-1985[a/]
(in thousand dinars)

Year	Current Expenditures				Development Expenditures	Total
	Total	Salaries and wages	General Expend.	Miscella-neous		
1978	136,900	69,368	29,304	38,318	148,318	285,308
%	48%	24%	10%	14%	52%	100%
1979	156,843	84,996	31,982	39,865	139,500	296,343
%	53%	29%	11%	13%	47%	100%
Rate of Growth 1978-1979	14.5%	22.5%	9.1%	4%	-5.9%	3.85%
1980	190,617	108,103	35,765	46,749	154,536	345,153
%	55%	31%	10%	14%	45%	100%
Rate of Growth 1979-1980	21.5%	27.2%	11.8%	17.3%	10.8%	16.5%
1981	234,612	128,883	39,005	66,724	175,825	410,437
%	57%	31%	10%	16%	43%	100%
Rate of Growth 1980-1981	23.1%	19.2%	9%	42.8%	13.7%	19%
1982	297,800	149,338	59,643	88,819	262,234	560,034
%	53%	27%	10%	16%	47%	100%
Rate of Growth 1981-1982	27%	15.9%	53%	33%	49%	36.4%
1983	320,500	166,631	64,746	89,123	225,521	646,021
%	50%	26%	10%	14%	50%	100%
Rate of Growth 1982-1983	7.6%	11.6%	8.5%	0.3%	-14%	15.3%
1984	-	-	-	-	294,762	-
%	-	-	-	-	-	-
1985	-	-	-	-	256,758	-
%	-	-	-	-	-	-
Rate of Growth 1978-1985	-	-	-	-	8.15%	-

a/ Ministry of Finance and National Economy: "The Four-Year Programme of Economic and Social Development for the Years 1982-1984", Bahrain, Ministry of Information.

Table A-3. Summary of foreign trade, 1970-1984
(B.D. Millions)

End of Period	Non-Oil[a/]			Oil[b/]		Total		Overall Trade Balance
	Import	Export	Balance	Import	Export[c/]	Import	Export	
1970	80.1	25.2	- 59.9	37.6	78.5	117.7	103.7	- 14.0
1971	109.1	30.1	- 79.0	39.0	97.4	148.1	127.5	- 20.6
1972	106.8	45.9	- 60.9	58.3	196.5	165.1	152.4	- 12.7
1973	128.0	59.1	- 68.9	76.3	132.4	204.3	191.5	- 12.8
1974	176.0	71.7	- 104.3	269.0	430.3	445.0	502.0	+ 57.0
1975	232.9	84.0	- 148.9	240.9	391.8	473.8	475.8	+ 2.0
1976	387.6	136.6	- 251.0	272.2	463.7	659.8	600.3	- 59.5
1977	444.9	157.6	- 287.3	357.8	572.7	802.7	730.1	- 72.6
1978	453.4	147.5	- 305.9	338.8	585.5	792.2	733.0	- 59.2
1979	469.3	175.5	- 293.8	476.0	772.5	945.3	948.0	+ 2.7
1980	563.0	150.9	- 412.2	749.9	1,206.6	1,313.0	1,351.5	+ 44.5
1981	615.5	175.0	- 440.2	935.1	1,459.6	1,550.6	1,634.6	+ 84.0
1982	665.0	242.7	- 422.3	693.9	1,182.1	1,358.9		
1983	720.4	242.7	- 489.6	536.2	972.0	1,256.6	1,202.8	- 53.8
1984 January				49.6	75.8			
February				63.8	92.3			
March				57.0	99.9			

Source: a/ Statistics Directorate - Cabinet Affairs - Bahrain Monetary Agency, 1984.
b/ Oil Directorate - Ministry of Finance.
c/ Including Abu-Saafa.

Table A-4. Non-oil exports according to country of destination, 1976-1984
(thousands of Bahrain Dinars)

	1976	1977	1978	1979	1980	1981	1982	1983	1984
ARAB COUNTRIES	82,236	99,476	62,338	106,310	101,757	130,185	113,658	87,730	69,430
Kuwait	3,164	5,256	8,127	18,382	12,188	8,899	11,422	5,430	4,864
Saudi Arabia	68,219	80,511	31,931	33,135	32,477	35,535	49,863	46,709	33,124
Lebanon	34	85	5	13	4	-	9	280	4
U.A.E.	6,111	5,598	17,518	43,647	32,296	37,041	17,030	17,512	17,510
Qatar	2,885	3,559	1,572	5,438	4,981	12,170	7,373	11,077	4,958
Oman	138	144	189	955	1,025	908	3,377	2,267	1,549
Other	1,685	4,325	2,996	4,740	18,786	35,632	24,584	4,455	7,411
%	60.2%	63.1%	42.3%	60.1%	68.1%	74.4%	46.8%	38.0%	
AFRICAN COUNTRIES	8	1	-	-	10	781	375	337	121
Kenya	-	-	-	-	-	-	172	181	118
Tanzania	-	-	-	-	-	-	81	-	-
Other	8	1	-	-	10	781	122	156	3
%	-	-	-	-	-	0.41%	0.15%	0.14%	
ASIAN COUNTRIES	40,688	48,141	78,874	58,171	36,524	32,237	92,113	106,894	62,669
Japan	25,685	23,513	51,778	19,024	8,181	15,191	43,016	57,195	30,861
Thailand	109	-	368	2,949	1,092	962	2,819	3,305	1,955
Taiwan	2,044	3,159	5,036	7,717	5,975	4,361	12,662	7,529	5,254
China	7,247	6,073	4	1	24	2	-	8,183	1,782
Singapore	83	126	818	1,786	317	502	2,026	4,254	1,929
Pakistan	198	410	238	210	74	57	3,804	864	721
India	109	658	2,345	8,427	3,949	853	4,109	2,698	12,212
Iran	5,157	14,020	13,672	9,875	15,238	9,424	223	380	-
Indonesia	35	49	157	667	172	48	2,370	1,585	2,000
Hong Kong	18	68	9	1,750	616	175	15,054	11,672	929
Other	3	15	4,449	5,765	886	662	6,030	9,229	5,026
%	29.8%	30.5%	53.5%	32.9%	24.5%	18.4%	37.9%	46.3%	
EUROPEAN COUNTRIES	8,658	2,840	218	1,585	1,125	901	19,139	17,559	6,289
Belgium	-	11	6	4	-	-	1,196	3,633	321
Denmark	-	-	4	-	1	42	8	62	73
West Germany	54	69	4	1,289	11	248	1,599	1,099	388
France	178	135	1	6	68	16	1,632	574	148
Sweden	-	-	-	-	-	75	393	24	20
Netherland	2,227	602	69	2	142	30	439	1,655	2,447
United Kingdom	4,241	262	114	270	792	394	12,754	9,851	2,216
Other	1,958	1,762	20	14	111	96	1,118	661	676
%	6.3%	1.2%	0.1%	0.9%	0.8%	0.5%	7.8%	7.6%	
AMERICAN COUNTRIES	2,462	3,644	613	4,317	2,277	914	3,548	2,762	12,214
U.S.A.	2,002	3,644	612	4,144	1,675	700	3,443	2,644	12,191
Canada	-	-	1	28	-	212	93	112	2
Other	440	-	-	145	602	2	12	5	21
%	1.8%	2.3%	0.4%	2.4%	1.5%	0.5%	1.4%	1.2%	
OCEANIC COUNTRIES	23	20	2	1	7	1,052	2,366	624	176
Australia	23	20	-	1	7	1,050	2,315	604	116
New Zealand	-	-	-	-	-	2	26	20	59
Other	-	-	2	-	-	-	25	-	1
%	-	-	-	-	-	0.6%	0.9%	0.2%	
SHIPS SUPPLIES	2,529	3,436	4,755	4,223	5,892	7,695	9,402	12,767	6,005
%	1.9%	2.3%	3.2%	2.4%	3.9%	4.4%	3.8%	5.5%	
AIRCRAFT SUPPLIES	-	43	745	787	1,745	1,215	2,012	2,063	2,292
%	-	-	0.5%	0.4%	1.2%	0.8%	0.8%	0.9%	
Other	-	-	-	1,630	-	-	118	59	37
%	-	-	-	0.9%	-	-	-	-	
TOTAL	136,604	157,602	147,545	177,024	149,337	174,980	242,731	230,795	159,233

Source: Bahrain, Statistics Directorate - Council of Ministers, Bahrain, 1984.

Table A-5. Composition and value of trade in 1981 and 1982

Description of traded goods (SITC)	Imports (Percentage of total trade)		Exports (Percentage of total trade)		Trade balance (Exports less imports in 1000 current US $)	
	1981	1982	1981	1982	1981	1982
OILS AND FATS						
Animal oils and fats(411)	0.0	0.0	0.0	0.0	-3.8	6.4
Fixed vegetable oils and fats(421/2)	0.3	0.2	0.0	0.0	-5045.1	-6470.9
Processed animal and vegetable oils and fats(431)	0.0	0.0	0.0	...	-54.5	...
CHEMICALS						
Organic chemicals(512)	0.0	0.0	0.0	0.0	-415.5	-299.7
Inorganic chem., oxides and halogen salts(513/4)	5.7	4.4	0.2	0.0	-92525.7	-157841.0
Dyeing, tanning and colouring materials(531)	...	...	...	...	...	...
Medicinal and pharmaceutical products(541)	0.6	0.2	0.0	0.0	-9829.1	-8008.2
Plastics, cellulose and artificial resins(581)	0.1	0.1	0.0	0.0	-2279.5	-3012.3
FERTILIZERS						
Nitrogenous fertilizers & related materials(5611)	...	...	...	...	...	...
Phosphatic fertilizers and related materials(5612)	...	...	...	...	...	...
Potassic fertilizers and related materials(5613)	...	...	...	...	...	...
PETROLEUM						
Petroleum, crude or partly refined(331)	0.0	50.9	...	16.6	...	-1246188.5
Petroleum products(332)	3.0	1.6	0.3	64.5	-48180.4	2252539.3
RUBBER						
Crude rubber, synthetic and reclaimed(231)	...	0.0	...	0.0	...	-7.1
Rubber materials, e.g.sheets, threads, piping(621)	0.7	0.0	0.0	0.0	-11563.0	-1301.1
Articles of rubber, e.g. tyres, tubes(629)	1.4	0.3	0.1	0.1	-22968.4	-7360.8
WOOD AND FURNITURE						
Wood, shaped or simply worked(243)	0.1	0.0	0.1	0.0	-1068.4	-1253.4
Pulp paper, including waste(251)	0.0	0.0	0.0	...	-10.1	...
Veneers, plywood, improved wood(631)	0.8	0.4	0.0	0.1	-13758.5	-12860.8
Wood manufactures(632)	0.5	0.3	0.1	0.0	-8004.1	-8108.8
Paper and paperboard(641)	0.4	0.2	0.0	0.0	-7324.0	-8547.3
Articles of pulp, paper or paperboard(642)	1.0	0.4	1.0	0.1	-12936.7	-12669.0
Furniture(821)	3.5	1.1	0.5	0.0	-56569.2	-38248.4
TEXTILES AND CLOTHING						
Wool and other animal hair(262)	0.0	0.0	...	...	...	...
Cotton(263)	0.0	0.0	...	...	...	...
Jute(264)	...	...	...	...	...	...
Vegetable fibres, flax and hemp(265)	...	...	...	...	...	...
Synthetic and regenerated fibres(266)	0.0	0.0	...	...	...	...
Textile yarn and thread(651)	0.1	0.0	0.0	...	-1690.9	...
Woven cotton fabrics(652)	0.3	0.1	0.0	0.0	-5190.5	-3651.1
Woven textile fabrics(653)	1.8	0.8	0.1	0.0	-28794.0	-27649.7
Made-up articles chiefly of textiles(656)	0.6	0.3	0.2	0.0	-9317.1	-9948.4
Travel bags, handbags, etc.(831)	0.2	0.1	0.0	0.0	-3365.5	-3744.3
Clothing, excluding leather(841 less 8413)	2.1	1.0	0.2	0.0	-33926.7	-33398.1
Calf leather(6113)	...	...	...	...	...	...
LEATHER AND PRODUCTS						
Other leather, including artificial(611 less 6113)	0.0	0.0	0.0	0.0	-116.8	-262.3
Leather manufactures(612)	0.0	0.0	0.0	0.0	-261.5	-495.6
Apparel and accessories of leather(8413)	0.0	0.0	...	...	...	...
Footwear(85)	0.8	0.3	0.1	0.0	-12143.6	-10452.5
BUILDING MATERIALS AND GLASS						
Lime, cement, fabricated building materials(661)	2.4	1.1	1.3	0.3	-34487.4	-30832.9
Construction and refractory materials of clay(662)	0.4	0.2	0.4	0.0	-5993.1	-8616.7
Glass(664)	0.3	0.1	0.3	0.0	-4602.8	-4666.0
Glassware and pottery(665/6)	0.6	0.2	0.1	0.0	-9831.4	-7392.5

=======> continued

Table A-5. (Continued)

Description of traded goods (SITC)	Imports (Percentage of total trade)		Exports (Percentage of total trade)		Trade balance (Exports less imports in 1000 current US $)	
	1981	1982	1981	1982	1981	1982
IRON AND STEEL						
Iron ore and concentrates(281)	...	...	...	...	...	...
Iron and steel scrap(282)	0.0	0.0	0.0	0.0	-91.8	-40.9
Pig iron and sponge(671)	0.0	0.0	...	0.0	...	-280.1
Ingots and other primary forms(672)	0.9	0.5	0.7	0.1	-13262.4	-12245.6
Bars, rods, shapes, sections(673)	...	...	...	...	...	...
Universals, plates and sheets(674)	0.5	0.2	0.6	0.1	-6819.0	-5803.1
Hoop and strip(675)	...	...	...	...	...	...
Iron and steel wire(677)	0.1	0.0	...	0.0	...	-318.3
Tubes, pipes and fittings(678)	2.3	2.0	12.7	0.1	504.4	-67051.3
Unworked castings and forgings(679)	...	...	...	...	...	...
NON-FERROUS METALS						
Non-ferrous ore and concentrates(283)	0.0	0.0	0.0	0.0	-561.1	53.9
Copper, blister, refined, alloys(6821)	...	...	...	...	...	...
Copper bars, shapes, sections, wire, etc.(6822)	...	...	...	...	...	...
Aluminium, unwrought or worked(684)	0.6	0.1	35.6	6.4	97444.7	223573.5
Lead, unwrought or worked(685)	0.0	0.0	0.0	0.0	-21.7	-67.3
Zinc, unwrought or worked(686)	0.0	0.0	0.0	0.0	-321.6	-212.2
Tin and alloys, unwrought or worked(687)	0.0	0.0	...	0.0	...	-35.7
Wire products, e.g. cables, ropes(693)	0.4	0.1	0.7	0.1	-4084.7	-2513.8
SELECTED CAPITAL GOODS						
Hand tools used in agriculture(6951)	...	...	...	...	...	...
Tools for use in hand or machine(6952)	...	...	...	...	...	...
Power generating machinery, non-electric(711)	1.6	1.8	0.8	0.1	-24320.0	-59533.2
Agricultural machinery(7121/2)	0.0	0.0	0.0	0.0	...	...
Dairy equipment(7123)	0.1	0.0	...	...	...	...
Tractors(7125)	0.2	0.1	0.0	0.0	-2698.3	-3422.2
Office machines(714)	1.3	0.5	3.7	0.0	-10556.1	-19683.6
Metal working machinery(715)	0.1	0.1	0.1	0.0	-2296.8	-1756.6
Textile and leather machinery(717)	0.1	0.0	...	...	...	...
Machines for paper, pulp and paper articles(7181)	...	...	...	...	...	...
Industrial food-processing machinery(7183)	0.0	0.0	0.0	...	-417.9	...
Machine tools for working minerals,wood,etc.(7195)	0.1	0.0	0.0	0.0	-1124.1	-1278.2
Electrical power machinery and switchgear(722)	2.2	1.1	1.0	0.3	-33248.2	-30054.1
MAJOR CONSUMER DURABLES						
Commercial road vehicles(732 less 7321)	2.2	1.6	0.4	0.2	-34998.5	-52542.1
Passenger motor cars(7321)	3.2	2.0	0.3	0.0	-50894.3	-72408.5
Television and radio sets(7241/2)	1.0	0.3	0.0	0.0	-16086.6	-11276.2
Domestic electrical equipment(725)	2.1	0.9	0.5	0.0	-33672.1	-31450.4
TOTAL OF ABOVE, IN MILLIONS OF US $	772	2746	187	3192	-585	447
TOTAL TRADE (SITC 0 TO 9), IN MILLIONS OF US $	1637	3615	301	3583	-1336	-33

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

Table A-6. Origin of imports by industry, 1982

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)	0.5	100.0	0.0	0.0	0.0	0.0	0.0
Fixed vegetable oils and fats(421/2)	6470.9	73.6	26.4	15.1	8.8	0.0	0.0
Processed animal and vegetable oils and fats(431)	75.5	81.4	18.6	9.6	9.0	0.0	0.0
CHEMICALS							
Organic chemicals(512)	300.1	1.0	97.5	51.6	45.3	0.6	0.0
Inorganic chem., oxides and halogen salts(513/4)	158077.3	0.2	99.7	2.3	5.7	3.6	0.0
Dyeing, tanning and colouring materials(531)	...	...	...	...	...	...	...
Medicinal and pharmaceutical products(541)	8040.3	6.9	92.8	9.3	66.8	1.1	0.0
Plastics, cellulose and artificial resins(581)	3127.2	15.3	81.5	38.3	33.2	0.6	0.5
FERTILIZERS							
Nitrogenous fertilizers & related materials(5611)	...	...	...	...	...	...	...
Phosphatic fertilizers and related materials(5612)	...	...	...	...	...	...	...
Potassic fertilizers and related materials(5613)	...	...	...	...	...	...	...
PETROLEUM							
Petroleum, crude or partly refined(331)	1840675.5	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum products(332)	57240.7	10.5	88.2	54.8	25.9	0.1	1.2
RUBBER							
Crude rubber, synthetic and reclaimed(231)	7.9	0.0	100.0	0.2	99.8	0.0	0.0
Rubber materials, e.g.sheets, threads, piping(621)	1450.9	18.9	79.0	13.2	56.4	7.2	0.0
Articles of rubber, e.g. tyres, tubes(629)	9362.0	25.9	70.2	10.4	15.6	43.3	0.0
WOOD AND FURNITURE							
Wood, shaped or simply worked(243)	1791.4	48.9	50.4	1.0	29.9	3.7	0.0
Pulp paper, including waste(251)	45.8	11.9	88.1	0.0	38.3	0.0	0.0
Veneers, plywood, improved wood(631)	15578.5	76.0	13.1	0.8	5.5	1.5	4.8
Wood manufactures(632)	9459.0	23.2	68.6	7.9	57.2	1.5	0.2
Paper and paperboard(641)	8680.8	18.3	78.3	7.9	31.4	17.3	0.0
Articles of pulp, paper or paperboard(642)	15066.7	22.0	75.6	25.5	31.5	4.9	0.1
Furniture(821)	39275.7	6.3	90.3	12.6	68.3	5.2	0.2
TEXTILES AND CLOTHING							
Wool and other animal hair(262)	16.4	25.1	74.9	0.0	29.1	0.0	0.0
Cotton(263)	153.7	81.7	16.6	0.1	10.3	6.2	0.0
Jute(264)	...	...	...	...	...	...	...
Vegetable fibres, flax and hemp(265)	...	...	...	...	...	...	...
Synthetic and regenerated fibres(266)	26.3	37.2	62.8	0.0	10.3	12.1	0.0
Textile yarn and thread(651)	674.8	30.2	60.9	0.8	36.7	22.3	5.5
Woven cotton fabrics(652)	3759.2	45.3	50.2	0.7	3.7	43.8	0.0
Woven textile fabrics(653)	27706.0	10.3	88.7	0.4	6.0	79.7	0.2
Made-up articles chiefly of textiles(656)	11070.7	30.3	67.4	9.7	40.5	2.1	0.4
Travel bags, handbags, etc.(831)	3751.5	42.0	25.2	12.8	9.4	2.0	0.0
Clothing, excluding leather(841 less 8413)	34699.6	49.7	35.8	8.3	22.6	1.9	0.0
Calf leather(6113)	...	...	...	...	...	...	...
LEATHER AND PRODUCTS							
Other leather, including artificial(611 less 6113)	298.6	14.3	82.1	0.2	79.9	2.0	0.0
Leather manufactures(612)	522.6	23.6	75.1	48.4	20.0	1.8	0.0
Apparel and accessories of leather(8413)	281.0	25.9	71.0	21.3	46.2	2.3	0.0
Footwear(85)	10885.5	56.5	30.0	0.6	20.6	1.6	0.2
BUILDING MATERIALS AND GLASS							
Lime, cement, fabricated building materials(661)	40277.6	58.3	41.5	1.0	11.9	2.2	0.0
Construction and refractory materials of clay(662)	8659.5	4.4	95.3	2.2	73.0	3.2	0.1
Glass(664)	4704.1	30.7	63.5	11.2	44.5	5.3	3.8
Glassware and pottery(665/6)	7843.4	28.9	65.1	6.5	29.1	20.8	0.0

------> continued

Table A-6. (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)	166.2	0.0	89.8	87.1	0.2	2.5	0.0
Pig iron and spo[illegible](67[illegible])	294.3	0.4	99.6	2.1	85.2	0.0	0.0
Ingots and other p[illegible]ry forms(672)	16490.9	16.8	80.9	0.2	5.3	75.4	2.1
Bars, rods, shapes, sec[illegible]ions(673)	...	...	...	...	...	...	...
Universals, plates and sheets(674)	8045.5	11.6	88.2	2.8	29.0	55.4	0.0
Hoop and strip(675)	...	...	...	...	...	...	...
Iron and steel wire(677)	829.1	32.8	66.2	4.2	22.4	39.7	0.0
Tubes, pipes and fittings(678)	72007.3	5.0	94.5	62.1	14.9	17.2	0.1
Unworked castings and forgings(679)	...	...	...	...	...	...	...
NON-FERROUS METALS							
Non-ferrous ore and concentrates(283)	53.4	74.4	25.6	0.7	19.6	5.0	0.0
Copper, blister, refined, alloys(6821)	...	...	...	...	...	...	...
Copper bars, shapes, sections, wire, etc.(6822)	...	...	...	...	...	...	...
Aluminium, unwrought or worked(684)	5295.2	8.7	90.0	16.1	39.4	9.4	0.0
Lead, unwrought or worked(685)	98.6	30.3	67.5	4.5	63.1	0.0	0.0
Zinc, unwrought or worked(686)	224.5	4.4	94.9	4.0	62.6	23.4	0.0
Tin and alloys, unwrought or worked(687)	35.7	0.8	99.2	0.0	98.6	0.5	0.0
Wire products, e.g. cables, ropes(693)	4888.6	27.1	71.6	6.2	23.5	13.1	0.0
SELECTED CAPITAL GOODS							
Hand tools used in agriculture(6951)	...	...	...	...	...	...	...
Tools for use in hand or machine(6952)	...	...	...	...	...	...	...
Power generating machinery, non-electric(711)	63678.3	0.3	99.7	32.7	52.0	1.8	0.0
Agricultural machinery(712i/2)	...	...	...	...	...	...	...
Dairy equipment(7123)	508.7	0.0	100.0	8.1	89.1	0.0	0.0
Tractors(7125)	3610.1	3.7	96.3	58.6	20.5	17.0	0.0
Office machines(714)	19694.2	3.3	96.6	41.3	41.3	9.9	0.1
Metal working machinery(715)	1978.3	20.4	79.2	9.2	60.1	6.1	0.0
Textile and leather machinery(717)	1652.1	9.5	83.4	15.2	28.8	36.9	0.0
Machines for paper, pulp and paper articles(7181)	...	...	...	...	...	...	...
Industrial food-processing machinery(7183)	636.7	2.4	88.9	17.5	61.2	3.3	0.1
Machine tools for working minerals,wood,etc.(7195)	1344.0	8.0	91.6	2.4	80.5	6.3	0.0
Electrical power machinery and switchgear(722)	39486.6	9.5	90.3	14.0	65.5	5.1	0.0
MAJOR CONSUMER DURABLES							
Commercial road vehicles(732 less 7321)	58254.7	8.9	90.9	15.0	17.9	57.3	0.0
Passenger motor cars(7321)	72661.1	0.3	99.7	7.2	26.5	64.6	0.0
Television and radio sets(7241/2)	11279.9	8.6	88.8	0.3	2.4	85.7	0.0
Domestic electrical equipment(725)	32295.4	12.9	86.1	23.1	25.2	33.1	0.0
TOTAL OF ABOVE	2745566	4.5	27.8	5.9	8.5	6.6	0.1
TOTAL OF ALL MERCHANDISE (SITC 0 to 9)	3615363	8.2	40.1	9.8	15.6	7.0	0.1

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-7. Destination of exports by industry, 1982

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)	6.9	100.0	0.0	0.0	0.0	0.0	0.0
Fixed vegetable oils and fats(421/2)	...	...	...	...	...	...	...
Processed animal and vegetable oils and fats(431)	...	...	...	...	...	...	...
CHEMICALS							
Organic chemicals(512)	0.3	100.0	0.0	0.0	0.0	0.0	0.0
Inorganic chem., oxides and halogen salts(513/4)	236.2	92.7	0.0	0.0	0.0	0.0	0.0
Dyeing, tanning and colouring materials(531)	...	...	...	...	...	...	...
Medicinal and pharmaceutical products(541)	32.1	95.3	4.7	0.0	4.7	0.0	0.0
Plastics, cellulose and artificial resins(581)	114.9	87.5	3.3	0.0	3.3	0.0	0.0
FERTILIZERS							
Nitrogenous fertilizers & related materials(5611)	...	...	...	...	...	...	...
Phosphatic fertilizers and related materials(5612)	...	...	...	...	...	...	...
Potassic fertilizers and related materials(5613)	...	...	...	...	...	...	...
PETROLEUM							
Petroleum, crude or partly refined(331)	594487.0	...	...	...	...	...	...
Petroleum products(332)	2309780.0	79.8	3.3	0.0	0.5	0.7	0.0
RUBBER							
Crude rubber, synthetic and reclaimed(231)	0.8	100.0	0.0	0.0	0.0	0.0	0.0
Rubber materials, e.g.sheets, threads, piping(621)	149.8	100.0	0.0	0.0	0.0	0.0	0.0
Articles of rubber, e.g. tyres, tubes(629)	2001.3	100.0	0.0	0.0	0.0	0.0	0.0
WOOD AND FURNITURE							
Wood, shaped or simply worked(243)	538.0	100.0	0.0	0.0	0.0	0.0	0.0
Pulp paper, including waste(251)	...	...	...	...	...	...	...
Veneers, plywood, improved wood(631)	2717.6	100.0	0.0	0.0	0.0	0.0	0.0
Wood manufactures(632)	1350.2	99.8	0.2	0.0	0.2	0.0	0.0
Paper and paperboard(641)	133.5	37.5	0.0	0.0	0.0	0.0	0.0
Articles of pulp, paper or paperboard(642)	2397.7	94.3	1.1	0.0	1.1	0.0	0.0
Furniture(821)	1027.2	67.2	1.5	0.0	1.5	0.0	0.0
TEXTILES AND CLOTHING							
Wool and other animal hair(262)	...	...	...	...	...	...	...
Cotton(263)	...	...	...	...	...	...	...
Jute(264)	...	...	...	...	...	...	...
Vegetable fibres, flax and hemp(265)	...	...	...	...	...	...	...
Synthetic and regenerated fibres(266)	...	...	...	...	...	...	...
Textile yarn and thread(651)	...	...	...	...	...	...	...
Woven cotton fabrics(652)	108.1	99.9	0.1	0.0	0.1	0.0	0.0
Woven textile fabrics(653)	56.2	99.3	0.0	0.0	0.0	0.0	0.0
Made-up articles chiefly of textiles(656)	1122.3	85.3	13.8	0.0	13.8	0.0	0.0
Travel bags, handbags, etc.(831)	7.1	52.8	27.5	0.0	27.5	0.0	0.0
Clothing, excluding leather(841 less 8413)	1301.4	95.7	0.7	0.0	0.7	0.0	0.0
Calf leather(6113)	...	...	...	...	...	...	...
LEATHER AND PRODUCTS							
Other leather, including artificial(611 less 6113)	36.3	100.0	0.0	0.0	0.0	0.0	0.0
Leather manufactures(612)	27.1	100.0	0.0	0.0	0.0	0.0	0.0
Apparel and accessories of leather(8413)	...	...	...	...	...	...	...
Footwear(85)	432.9	100.0	0.0	0.0	0.0	0.0	0.0
BUILDING MATERIALS AND GLASS							
Lime, cement, fabricated building materials(661)	9444.7	97.8	0.0	0.0	0.0	0.0	0.0
Construction and refractory materials of clay(662)	42.8	100.0	0.0	0.0	0.0	0.0	0.0
Glass(664)	38.1	100.0	0.0	0.0	0.0	0.0	0.0
Glassware and pottery(665/6)	450.8	81.5	16.5	0.0	16.2	0.0	0.0

=======> continued

Table A-7. (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)	125.3	61.9	24.4	0.0	0.0	0.0	0.0
Pig iron and sponge(671)	14.2	100.0	0.0	0.0	0.0	0.0	0.0
Ingots and other primary forms(672)	4245.3	100.0	0.0	0.0	0.0	0.0	0.0
Bars, rods, shapes, sections(673)	...	...	...	...	...	...	...
Universals, plates and sheets(674)	2242.3	100.0	0.0	0.0	0.0	0.0	0.0
Hoop and strip(675)	...	...	...	...	...	...	...
Iron and steel wire(677)	510.8	100.0	0.0	0.0	0.0	0.0	0.0
Tubes, pipes and fittings(678)	4956.0	99.2	0.5	0.5	0.0	0.0	0.0
Unworked castings and forgings(679)	...	...	...	...	...	...	...
NON-FERROUS METALS							
Non-ferrous ore and concentrates(283)	107.3	0.0	100.0	0.0	0.0	100.0	0.0
Copper, blister, refined, alloys(6821)	...	...	...	...	...	...	...
Copper bars, shapes, sections, wire, etc.(6822)	...	...	...	...	...	...	...
Aluminium, unwrought or worked(684)	228868.7	31.0	54.3	0.0	2.0	49.7	0.0
Lead, unwrought or worked(685)	31.3	100.0	0.0	0.0	0.0	0.0	0.0
Zinc, unwrought or worked(686)	12.2	100.0	0.0	0.0	0.0	0.0	0.0
Tin and alloys, unwrought or worked(687)	0.0	...	...	...	...	...	...
Wire products, e.g. cables, ropes(693)	2374.8	99.4	0.2	0.2	0.0	0.0	0.0
SELECTED CAPITAL GOODS							
Hand tools used in agriculture(6951)	...	...	...	...	...	...	...
Tools for use in hand or machine(6952)	...	...	...	...	...	...	...
Power generating machinery, non-electric(711)	4145.1	97.5	2.5	0.1	2.4	0.0	0.0
Agricultural machinery(7121/2)	...	...	...	...	...	...	...
Dairy equipment(7123)	...	...	...	...	...	...	...
Tractors(7125)	188.0	100.0	0.0	0.0	0.0	0.0	0.0
Office machines(714)	10.6	54.6	45.4	28.3	17.1	0.0	0.0
Metal working machinery(715)	221.6	100.0	0.0	0.0	0.0	0.0	0.0
Textile and leather machinery(717)	...	...	...	...	...	...	...
Machines for paper, pulp and paper articles(7181)	...	...	...	...	...	...	...
Industrial food-processing machinery(7183)	...	...	...	...	...	...	...
Machine tools for working minerals,wood,etc.(7195)	65.8	100.0	0.0	0.0	0.0	0.0	0.0
Electrical power machinery and switchgear(722)	9432.6	99.7	0.3	0.2	0.1	0.0	0.0
MAJOR CONSUMER DURABLES							
Commercial road vehicles(732 less 7321)	5712.6	98.9	1.1	0.0	1.1	0.0	0.0
Passenger motor cars(7321)	252.6	100.0	0.0	0.0	0.0	0.0	0.0
Television and radio sets(7241/2)	3.7	...	...	...	...	...	...
Domestic electrical equipment(725)	845.0	99.8	0.0	0.0	0.0	0.0	0.0
TOTAL OF ABOVE	3192407	61.8	6.3	0.0	0.5	4.1	0.0
TOTAL OF ALL MERCHANDISE (SITC 0 to 9)	3582798	58.6	12.8	0.5	2.6	7.2	0.0

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-8. Average apparent consumption of selected manufactures, 1979-1981

Product grouping and commodity (ISIC)		Unit	Average apparent consumption per 1000 inhabitants	Imports (As percentage of apparent consumption)	Exports (As percentage of apparent consumption)	Average annual production	Growth rate of apparent consumption
			1979-1981	1979-1981	1979-1981	1979-1981	1970-1981
FOOD PRODUCTS							
Raw sugar (311801)		W	...	...	...	...	...
Refined sugar (311804)		W	...	...	...	...	...
Cocoa powder (311907)		W	...	...	...	...	...
Cocoa butter (311910)		W	...	...	...	...	...
Chocolate and chocolate products (311913)		W	...	...	...	...	...
Prepared animal feeds (312201)	a/	W	13.17	100.0	0.0	0	36.64
OILS AND FATS							
Oils and fats of animals, unprocessed (311507)		W	...	...	...	...	...
Oils of vegetable origin (311510*)		W	...	...	...	...	...
TEXTILES							
Wool yarn, pure and mixed (321103)	a/	W	0.01	100.0	0.0	0	-10.68
Cotton yarn, pure and mixed (321109)		W	...	...	...	...	...
Cotton woven fabrics (321128)		S	...	...	...	...	...
Woollen woven fabrics (321134)		S	...	...	...	...	...
Knitted fabrics (321301)		W	...	...	...	...	...
FOOTWEAR							
Footwear, excluding rubber footwear (324000)		P	...	...	...	...	...
WOOD AND WOOD PRODUCTS							
Veneer sheets (331110)		V	0.92	100.0	0.0	0	25.79
Particle board (331122)		V	...	...	...	...	-48.70
PAPER AND PAPER PRODUCTS							
Wood pulp, mechanical (341101)		W	0.00	100.0	0.0	0	...
Pulp of fibres other than wood (341104)	b/	W	0.00	100.0	0.0	0	-97.71
Wood pulp, dissolving grades (341107)		W	0.00	...	...	0	...
Wood pulp, sulphate and soda (341110)	a/	W	0.00	...	...	0	84.62
Wood pulp, sulphite (341113)	a/	W	0.11	100.0	0.0	0	-4.96
Wood pulp, semi-chemical (341116)	a/	W	0.00	100.0	0.0	0	...
Newsprint (341119)		W	2.04	100.0	0.0	0	32.45
Other printing and writing paper (341122)		W	6.70	100.1	0.1	0	17.59
Kraft paper and kraft paperboard (341125)		W	...	...	...	...	-16.81
Other paper and paperboard (341131)		W	...	...	...	...	-31.88
INDUSTRIAL CHEMICALS							
Methanol (methyl alcohol) (351121)	a/	W	0.09	100.3	0.3	0	72.41
Glycerine (glycerol) (351125)	a/	W	0.01	100.0	0.0	0	9.52
Chlorine (351145)	a/	W	0.22	112.4	12.4	0	3.76
Sulphuric acid (351147)	a/	W	2.50	100.0	0.0	0	69.80
Nitric acid (351149)	a/	W	0.08	100.0	0.0	0	30.08
Zinc oxide (351154)		W	...	...	...	...	...
Titanium oxides (351155)		W	...	...	...	...	...
Lead oxides (351157)	a/	W	0.17	100.0	0.0	0	15.29
Ammonia (351158)		W	...	...	...	...	...
Caustic soda (351159)		W	...	...	...	...	...
Soda ash (351166)		W	...	...	...	...	...
Hydrogen peroxide (351171)		W	...	...	...	...	...
Calcium carbide (351173)		W	...	...	...	...	...
Dyestuffs, synthetic (351174)	a/	W	0.10	101.0	1.0	0	43.87
Vegetable tanning extracts (351175)	a/	W	0.00	100.0	0.0	0	-1.36
Nitrogenous fertilizers (351201)	a/	W	0.06	100.0	0.0	0	13.19
Phosphatic fertilizers (351204 + 351207)	a/	W	0.03	100.0	0.0	0	-3.20
Potassic fertilizers (351210)		W	...	...	...	...	-14.76
Insecticides, fungicides, etc. (351216)		W	...	...	...	...	...
Rubber, synthetic (351301)	a/	W	0.01	100.0	0.0	0	10.28
Non-cellulosic staple and tow (351304)		W	...	...	...	...	...
Regenerated cellulose (351331)		W	...	...	...	...	...

=======> continued

Table A-8. (Continued)

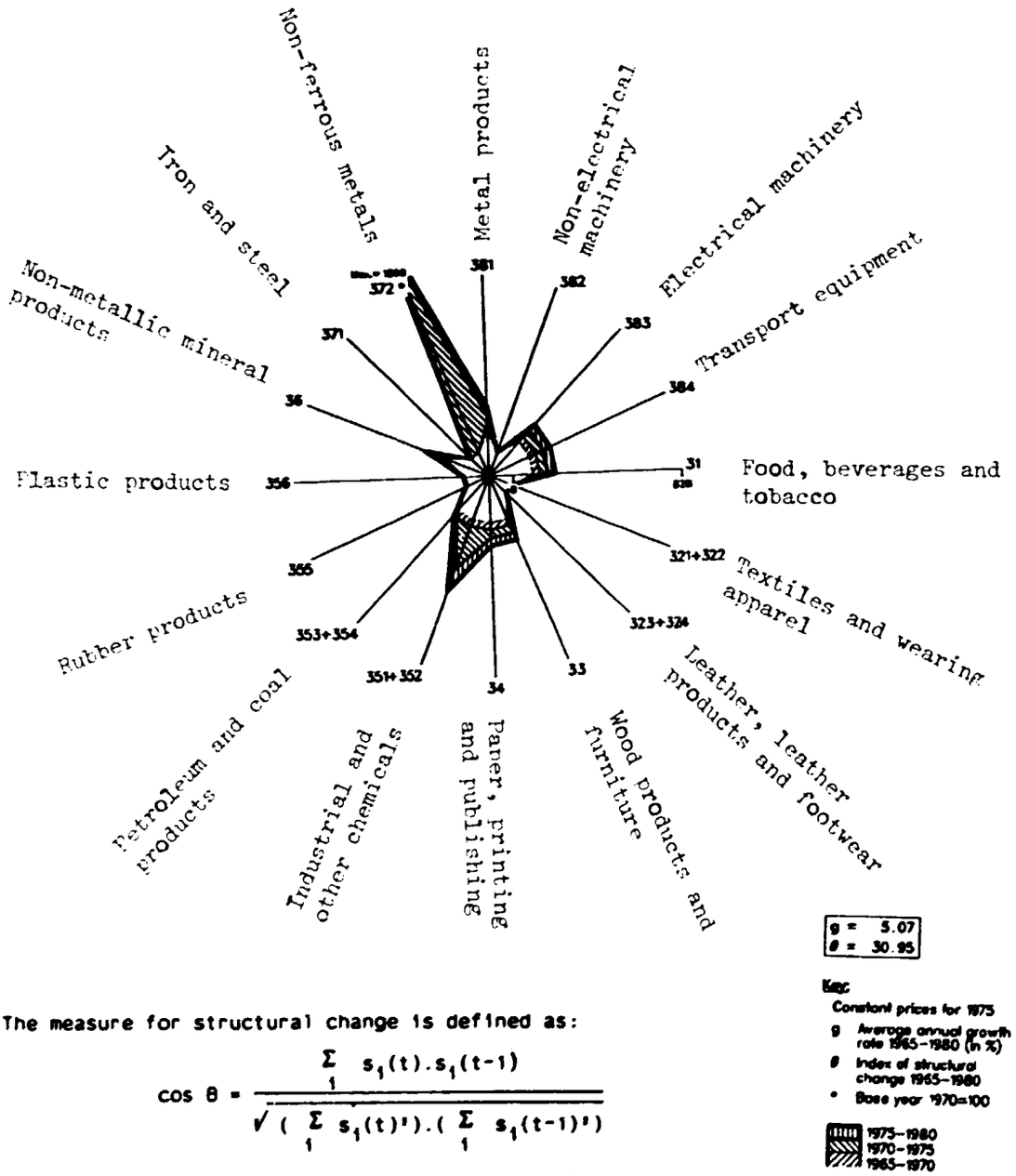
Product grouping and commodity (ISIC)		Unit	Average apparent consumption per 1000 inhabitants	Imports (As percentage of apparent consumption)	Exports (As percentage of apparent consumption)	Average annual production	Growth rate of apparent consumption
			1979-1981	1979-1981	1979-1981	1979-1981	1970-1981
PETROLEUM REFINERIES							
Motor gasolene (353007A)		W	351.06	0.0	943.9	1148333	14.16
Kerosene (353013A)		W	27.66	0.0	1903.8	173667	-2.22
Distillate fuel oils (353019A)		W	794.68	0.0	1257.8	3381000	4.18
Residual fuel oils (353022A)		W	562.77	0.0	2371.5	4358000	-15.06
Lubricating oils (353025A)		W	...	...	...	...	-19.08
Liquefied petroleum gas (353037A)		W	109.57	0.0	325.2	146000	17.28
GLASS AND CEMENT							
Glass bottles and containers (3620108)	a/	W	4.54	100.2	0.2	0	18.30
Cement (369204)		W	...	...	...	...	...
IRON AND STEEL							
Pig iron (371007 + 371010)	b/	W	0.93	100.0	0.0	0	-2.59
Wire rods (371028)		W	...	...	...	...	...
Angles, shapes and sections (371035)		W	...	...	...	...	...
Plates(heavy), over 4.75 mm. (371040)		W	...	...	...	...	...
Plates(medium), 3 to 4.75 mm. (371043)		W	...	...	...	...	...
Plates and sheets, < 3 mm. (371046 + 371049 + 371052)		W	26.43	109.6	9.6	0	103.46
Tinplate (371055)		W	...	...	...	...	...
Railway track material (371067)		W	...	...	...	...	...
Wire, plain (371070)		W	...	...	...	...	...
Tubes, seamless (371076)		W	...	...	...	...	6.11
Tubes, welded (371079)		W	...	...	...	...	...
Steel castings in the rough state (371085)		W	...	...	...	...	...
Steel forgings (371088)	c/	W	0.04	100.0	0.0	0	29.58
NON-FERROUS METALS							
Copper, refined, unwrought (372004)		W	...	...	...	...	...
Copper bars, rods, angles, etc. (372010 + 372013)	b/	W	0.24	100.0	0.0	0	16.80
Copper plates, sheets, strip and foil (372016)	a/	W	0.08	100.0	0.0	0	6.48
Copper tubes and pipes (372019)	a/	W	1.63	100.2	0.2	0	21.20
Aluminium, unwrought (372022)	d/	W	183.49	0.2	131.8	133850	31.77
Aluminium bars, rods, angles, etc. (372025 + 372028)		W	...	...	...	...	...
Aluminium plates, sheets, strip etc. (372031)		W	...	...	...	...	133.82
Aluminium tubes and pipes (372034)		W	...	...	...	...	459.82
Lead, refined, unwrought (372037)		W	...	...	...	...	...
Zinc, unwrought (372043)	c/	W	0.07	100.0	0.0	0	5.87
Zinc plates, sheets, strip and foil (372046)		W	...	...	...	...	...
Tin, unwrought (372049)		W	...	...	...	...	...

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

Note: ISIC 311510* consists of 311510 + 311513 + 311516 + 311519 + 311522 + 311525 + 311528 + 311531 + 311534 + 311537.
Growth rates have been calculated on the basis of available annual data over the period indicated.
Footnotes: a/ Data for 1981 not available.
b/ Data for 1979 only.
c/ Data for 1980 only.
d/ Data for 1979 not available.

Table A-9. INDUSTRIAL STRUCTURAL CHANGE, 1965-1980

(Index of value added: 1965=100)



The measure for structural change is defined as:

$$\cos \theta = \frac{\sum_{1} s_1(t).s_1(t-1)}{\sqrt{\left(\sum_{1} s_1(t)^2\right).\left(\sum_{1} s_1(t-1)^2\right)}}$$

where $s_1(t)$ is the share of the i-th branch of value added in total value added in the year t.

The value θ can be interpreted as the angle between the two vectors $s_1(t-1)$ and $s_1(t)$ measured in degrees.

The theoretical maximum value of θ is 90 degrees.

Source: UNIDO, Industry and Development, Global Report, 1985.

APPENDIX B

Table B-1. Major Companies in Bahrain, 1984
(values in millions of US dollars)

	Company	Type of Business	Sales/ turnover	Profit	Employees	Total/ Net assets	Ownership
1	Bahrain National Oil Co (Banoco)	Oil	1,454.39		638		
2	Balco	Aluminium	737.00	105.00			
3	Bahrain Telecommunications Co (BSC)	Telecommunications	127.35	63.68	2,000	238.79	
4	Ashraf Brothers	Import/export/ elec goods	60.00		350		
5	National Import & Export Co.	Cement/const mats/food	58.70	6.10	27	30.50	
6	Jalal Costain	Civil eng & constr	50.77		450		
7	Alrayyes, Yousuf Khalil & Sons	Gen merchants/ landlords	40.00		450		
8	Gray Mackenzie & Co	Commerce/ind services	36.52	8.82	4,715	144.86	Inchcape, UK
9	NCR Corp Gulf	Business equip	33.87	5.50	276	25.465	US
10	Pocx (Middle East) EC	Catering	24.20		850		Inchcape, UK
11	Ali Bin Ebrahim Abdul Aal Est	Gen merchants/ contractors	22.60		500		
12	Al Khajah Group of Companies	Elec, civil, mechanical eng.	21.99	1.20	750	17.28	
13	Fortune Promoseven	Advertising & PR	16.87		125	2.64	
14	Airmech Eastern Engineering	Electrical mechanical eng.	15.00		400	12.00	General Electric, US
15	Al Bourshaid Est	Medical/constr	13.30	1.595	200		
16	Mahmood, Hasan & Habib s/o	Civil eng/food	13.27	1.99	1,000	31.84	
17	Amiri Construction & Maintenance Est	Contracting	9.00	0.20	205	12.00	
18	Bahrain Tourism Co	Travel/tourism/ hotel/catering	8.99	3.17	250	34.57	
19	Alarardi Transport & Construction	Transport/ contracting/labour supply	8.55	2.13	285	11.97	
20	Shehabi Trading & Contracting	Constr/ contracting/trading	7.98	0.86	500 + sub contractors	4.52	
21	M & I Construction	Gen construction	7.71	1.06	555	1.59	
22	National Hotels Co	Hoteliers	7.46			44.00	
23	Aeradio Technical Services	Land, marine, electronic & avionic sales installations	4.40	0.56	85	2.42	UK
24	Bahrain Flour Mills Co	Flour milling	4.32		100	5.86	
25	Gulf Construction (ME)	Civil eng/ contracting	3.20	1.30	150	3.90	

Source: South, November 1985.

Table B-2. Investment companies in Bahrain, 1984

Al Baraka Islamic Investment Bank
P.O. Box 1885
Manama, Bahrain.

Arab Financial Services
P.O. Box
Manama, Bahrain.

Arabian Investment Banking (Corp.) E.C.
P.O. Box 5340
Manama, Bahrain.

B.A.I.I. Corp. E.C.
P.O. Box 20426
Manama, Bahrain.

Bahrain Kuwaiti Investment Group
P.O. Box 211
Manama, Bahrain.

Bahrain Investment Company B.S.C.
P.O. Box 5808
Manama, Bahrain.

Bahrain Islamic Investment Co. B.S.C.
P.O. Box 5571
Manama, Bahrain.

Citicorp International Middle East E.C
P.O. Box 548
Manama, Bahrain.

E.F. Hutton (M.E.) Ltd.
P O Box 62
Manama, Bahrain.

Islamic Investment Company of the Gulf (Bahrain) E.C.
P O Box 20492
Manama, Bahrain

Menill Lynch Intl. & Co.
P.O. Box 5399
Manama, Bahrain.

Nomura Investment Banking (M.E.) E.C.
P.O. Box 26893
Manama, Bahrain.

Sumitomo Finance (M.E.) E.C.
P.O Box 20483
Manama, Bahrain.

Trans-Arabian Investment Bank E.C.
P.O. Box 20485
Manama, Bahrain.

United Gulf Investment Co.
P.O. Box 5964
Manama, Bahrain.

Yamaichi International (M.E.) E.C.
P.O. Box 26894
Manama, Bahrain.

Selected References

Bahrain Monetary Agency, Annual Report 1981, pp. 9 and 10.

Bahrain Monetary Agency, Quarterly Statistical Bulletin, various issues.

ECWA, National Accounts Studies, December 1984.

Financial Times, Monday, July 22, 1985.

Metra Consulting, Business Opportunities in the 1980s: The Gulf States, 1984.

Middle East Development Digest, "Bahrain Development Programme", December 1983.

Robin Allen, Bahrain: Special Report, MEED, September 1984.

State of Bahrain, Ministry of Finance and National Economy, The Four-Year Programme of Economic and Social Development for the years 1982-1985, 1982.

UNIDO, Domestic Economic Growth and Move to Sub-Regional Industrial Restructuring in Bahrain, May 1984, p. 89 (draft).

UNIDO, Long-Term Prospects of Industrial Development in Bahrain, UNIDO/IS.235, June 1981, pp. 107-168.

World Bank, World Development Report, various issues.

(Additional comments)

Fold 1

AEROGRAMME

Return Address:

_____

_____

_____

_____

STAMP

Regional and Country Studies Branch (D2036)
United Nations Industrial Development Organization
P.O. Box 300
A-1400 Vienna
AUSTRIA

Fold 2

Please close with staples

Dear Reader,

Would you like to have your name included in the mailing list for the *Country Industrial Development Review Series*?

In order to make future issues more relevant and informative and to aid in the updating and revision of the *Reviews*, the staff of the Regional and Country Studies Branch solicit your comments and suggestions. We would therefore appreciate your response to the questions listed below. Please return this pre-addressed form to UNIDO (as an aerogramme—no envelope needed).

Industrial Development Review of **BAHRAIN**

(a) Do you consider the *Industrial Development Review:*

	Check
Very important	☐
Useful	☐
Of little importance	☐

(b) For which particular purpose is the *Review* useful? _____

_____

_____

_____

(c) Suggest additional topics to be covered or additional emphasis on specific subject: _____

_____

_____

_____

(d) Criticism of analyses and other comments: _____

_____

_____

_____

(e) Which of the following activities are you involved in?

	Check
Government policy making	☐
International aid	☐
Business/industry	☐
Industrial institution	☐
Academic research	☐
Journalism	☐
Other (please specify)	☐

(f) Would you like to receive *Reviews* on:

	Check
Asia and Pacific countries	☐
West Asian (Arab) countries	☐
African countries	☐
Latin American countries	☐
All developing regions referred to above	☐
Specific countries (please specify)	☐

(g) Please send future *Reviews* to the following address:

_____ (Name)

_____ (Occupation, title)

_____ (Organization)

_____ (District, city)

_____ (P.O. Box)

_____ (Country)

Previously issued in the Industrial Development Review Series:

Indonesia	UNIDO/IS.458	1984
Kenya	UNIDO/IS.459	1984
Argentina	UNIDO/IS.460	1984
Paraguay	UNIDO/IS.461	1984
Uruguay	UNIDO/IS.462	1984
Bangladesh	UNIDO/IS.510	1985
Swaziland	UNIDO/IS.516	1985
Zambia	UNIDO/IS.520	1985
The Philippines	UNIDO/IS.527	1985
Pakistan	UNIDO/IS.535	1985
The Sudan	UNIDO/IS.541	1985
Malaysia	UNIDO/IS 545	1985
India	UNIDO/IS.547	1985
Thailand	UNIDO/IS.548	1985
Peru	UNIDO/IS.552	1985
Nigeria	UNIDO/IS.557	1985
Bolivia	UNIDO/IS.564	1985
Chile	UNIDO/IS.579	1985
The People's Republic of China	UNIDO/IS.582	1985