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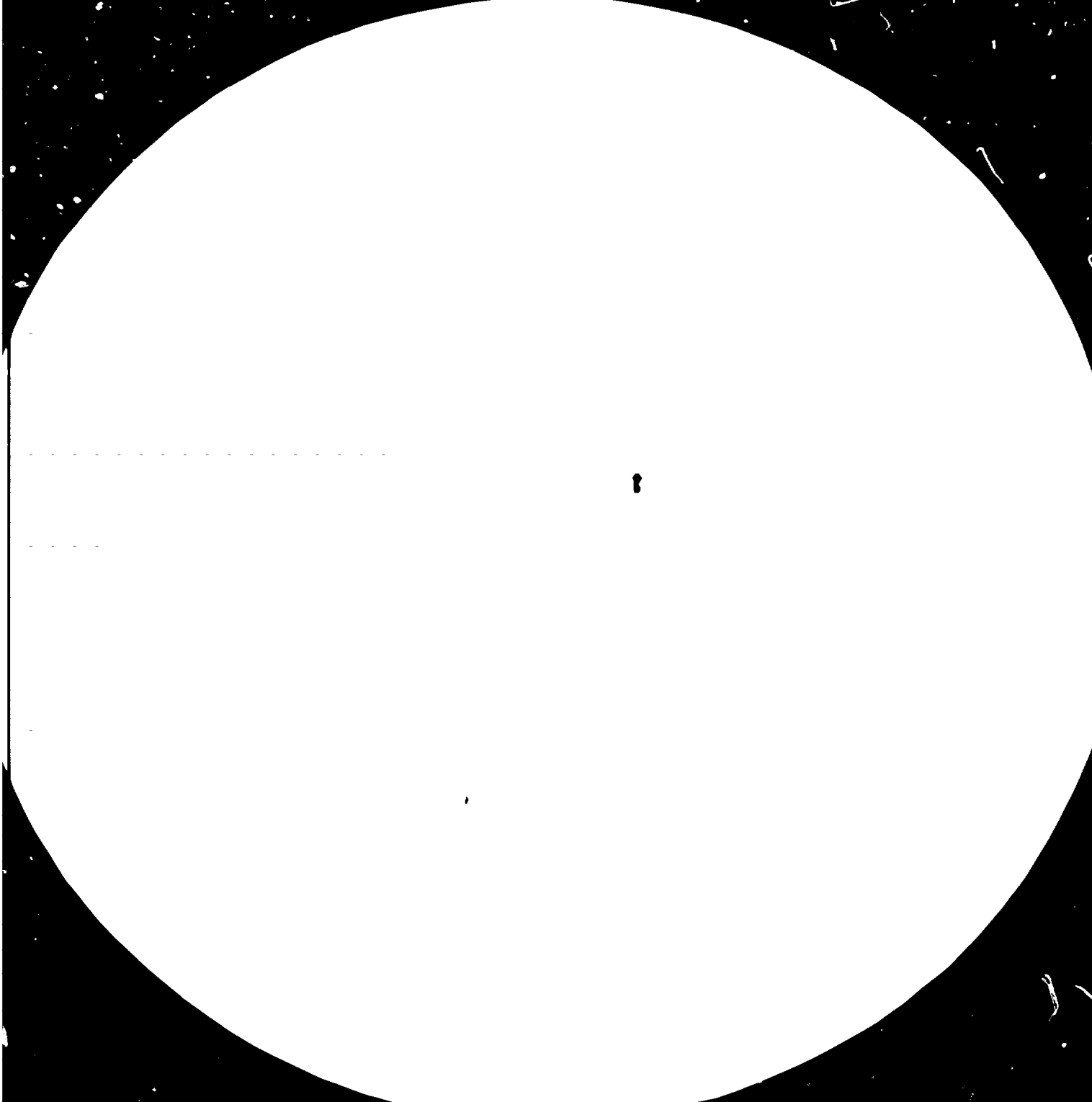
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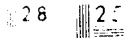
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BAHRAIN.

RECENT INDUSTRIAL AND ECONOMIC DEVELOPMENT,
NEW TRENDS AND REGIONAL PROSPECTS.*

A Country study prepared by Iesam El-Zaim

060185

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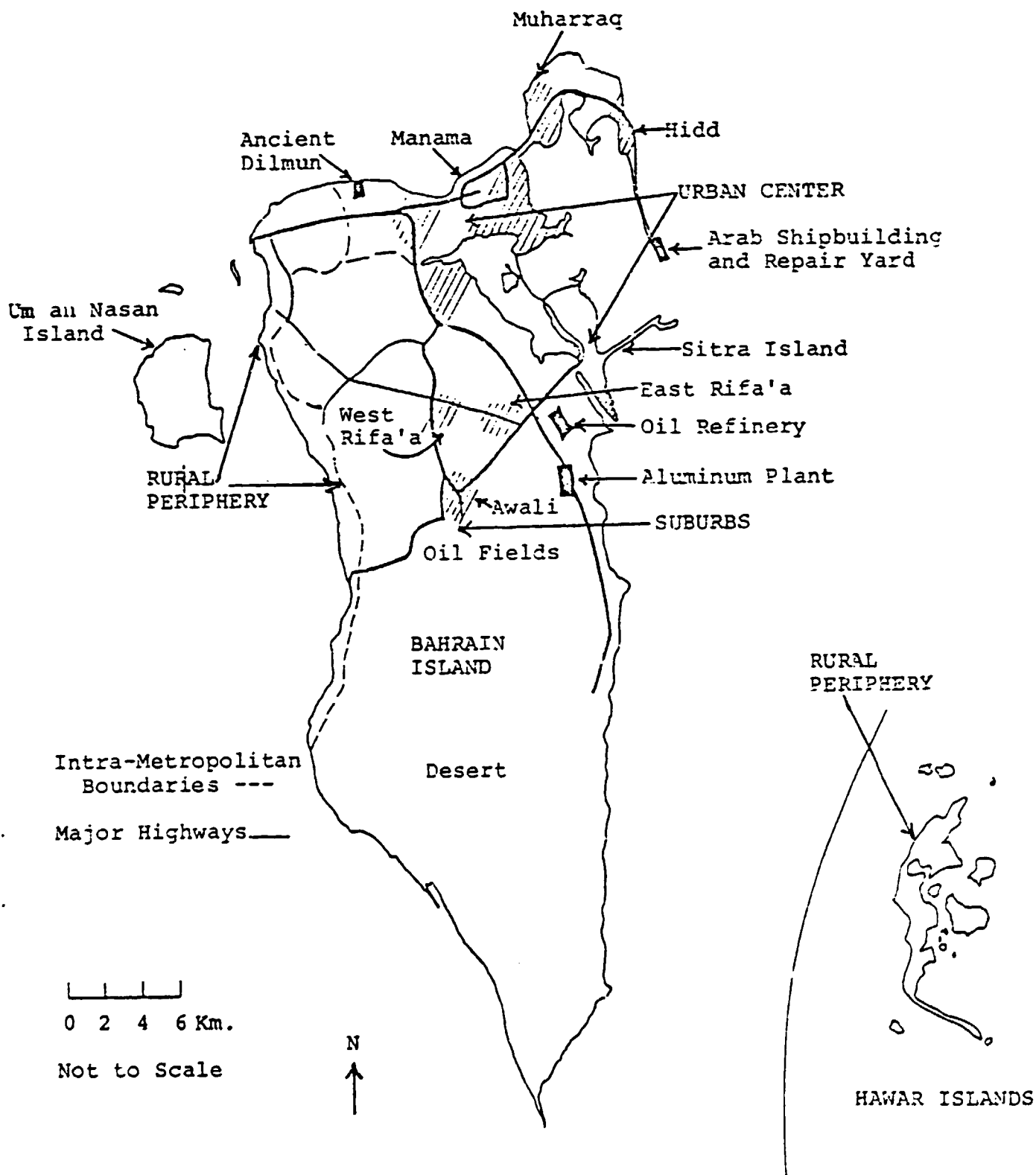
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CHAPTER i

GENERAL PRESENTATION AND POPULATION

Figure 1
Metropolitan Bahrain



The boundaries shown on maps do not imply official endorsement or acceptance by the United Nations.

1. Setting

Situation and site. The State of Bahrain comprises an archipelago of approximately 35 small low-lying islands located off the coast of the Arabian Peninsula about midway along the Gulf. The total area of the state is 622 square kilometers, of which Bahrain Island is 563 kilometers. Manama, the capital, is situated at the northeast coast of Bahrain Island, and is connected by causeways to Muharraq and Sitra Islands. Muharraq Island, in turn, is linked by causeway to the new Arab Shipbuilding and Repair Yard. Other islands include Nabih Salih, Jidda, Um an Nasan, and the Hawar group, to the southeast near Qatar (Figure 1). ^{1/}

2. Population Growth ^{2/}

Modern growth. Bahrain was redeveloped as an important trading and pearl-fishing center following its liberation by Al-Khalifa in 1783 (Issawi, 1966). Its population was estimated at 70,000 in 1863 (Palgrave, 1865), and more than 100,000 in 1914 (Lorimer, 1908-1915; Great Britain, Admiralty War Staff, 1915). The 1914 estimate may be high. Nevertheless, extensive population growth probably took place prior to World War I as a consequence of Bahrain's economic development and improved living conditions. Since 1941, rapid economic and metropolitan change has been accompanied by high rates of natural increase and the immigration of large numbers of workers and their families. As a result, the total population increased 3.3 times between 1941 and 1973.

^{1/} State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: 'The Population of Bahrain, Trends and Prospects', p. 3

^{2/} *ibid.*, p. 6 ff.

Table 1 describes the change in number and percentage of Bahrainis and foreigners in Bahrain from January 1941 to January 1973. The population enumerated in the census increased from 39,970 in January 1941 to 109,650 in March 1950, and to 143,135 in May 1959. The estimated total population (adjusted for 'underenumeration' of females and persons less than 10 years of age) was 189,400 in February 1965 and 224,100 in April 1971.

Growth rates experienced since the last census are the highest in Bahrain's recorded history. Mean annual rates of population growth increased from 5.1 per cent for the period 1971-1976 to 9.7 per cent in 1976-1977 and to 10.5 per cent during the last nine months of 1977. The total population was estimated at 281,600 in April 1976, 308,900 in April 1977 and 341,400 in January 1978. The state's population will double prior to January 1985, if it continues to increase at the current rate.

Growth of the Bahraini and foreign populations. Figure 2 and Table 1 show the contribution of Bahrainis and foreign residents to recent population growth. The unprecedented current increase in Bahrain's population is now enhanced by greater numbers of foreign residents, coming from other Arab countries, Asia and Europe. The number of foreigners increased by 223 per cent from April 1971 to December 1977, while Bahraini nationals living in Bahrain increased their number by only 17 per cent. During this period the number of foreigners residing in Bahrain increased 13 times more rapidly than that of Bahraini residents, and foreigners accounted for approximately three fourths of the state's total population growth. The foreign population now constitutes more than one third of the total population.

Components of Change. Population growth is a consequence of natural increase (births minus deaths) and net migration (immigrants minus emigrants). Although there are no estimates of these components of change for the time before 1965, the intercensal growth rates suggest high rates of natural increase among the Bahraini population. Fertility was probably

Table 1

Number, Percent and Percent Change of Population
by National Origin: Enumerated 1941-1971, Estimated 1976-1978

	Jan. 1941	Mar. 1950	May 1959	Feb. ^a 1965	Apr. ^a 1971	Apr. 1976	Apr. 1977	Jan. 1978
POPULATION								
Total	89,970	100,650	143,135	189,377	224,130	281,560	308,870	341,380
Bahraini	74,040	91,179	118,734	149,929	185,397	213,180	215,180	216,230
Non-Bahraini	15,930	18,471	24,401	39,448	38,733	68,390	93,690	125,160
PERCENT								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bahraini	82.3	83.2	83.0	79.2	82.7	75.7	69.7	63.3
Non-Bahraini	17.7	16.8	17.0	20.8	17.3	24.3	30.3	36.7
PERCENT CHANGE								
	Jan 1941- Mar 1950	Mar 1950- May 1959	May 1959- Feb 1965 ^b	Feb 1965- Apr 1971	Apr 1971- Apr 1976	Apr 1976- Apr 1977	Apr 1977- Jan 1978	
Total	21.9	30.5	32.3	18.4	25.6	9.7	10.5	
Bahraini	23.1	30.2	26.3	23.7	15.0	0.9	0.5	
Non-Bahraini	16.0	32.1	61.7	- 1.8	76.6	37.0	33.6	

^aAdjusted for underenumeration: See Appendix B, Section 1.

^bPercent change may be overestimated, since unadjusted data (1959) is compared with adjusted data (1965).

Sources: 1941-1965: Government of Bahrain, Finance Department, Statistical Bureau. The Fourth Population Census of Bahrain. August 1969. Table 1. See Appendix B, Section 1 for adjustment of the 1965 population.

1971: State of Bahrain, Ministry of Finance and National Economy, Statistical Bureau. Statistics of the Population Census 1971. Table 5. See Appendix B, Section 1 for adjustment.

1976-1978: Appendix B, Section 3.

The population of Bahrain amounted to 150,000 inhabitants in 1960 and 215,000 in 1970. According to some estimations this number increased at an annual rate of 3.2 per cent from 215,000 to 260,000 between 1970 and 1976. ^{1/} This rate is relatively but not exceptionally high and can be compared to that of a country like Syria.

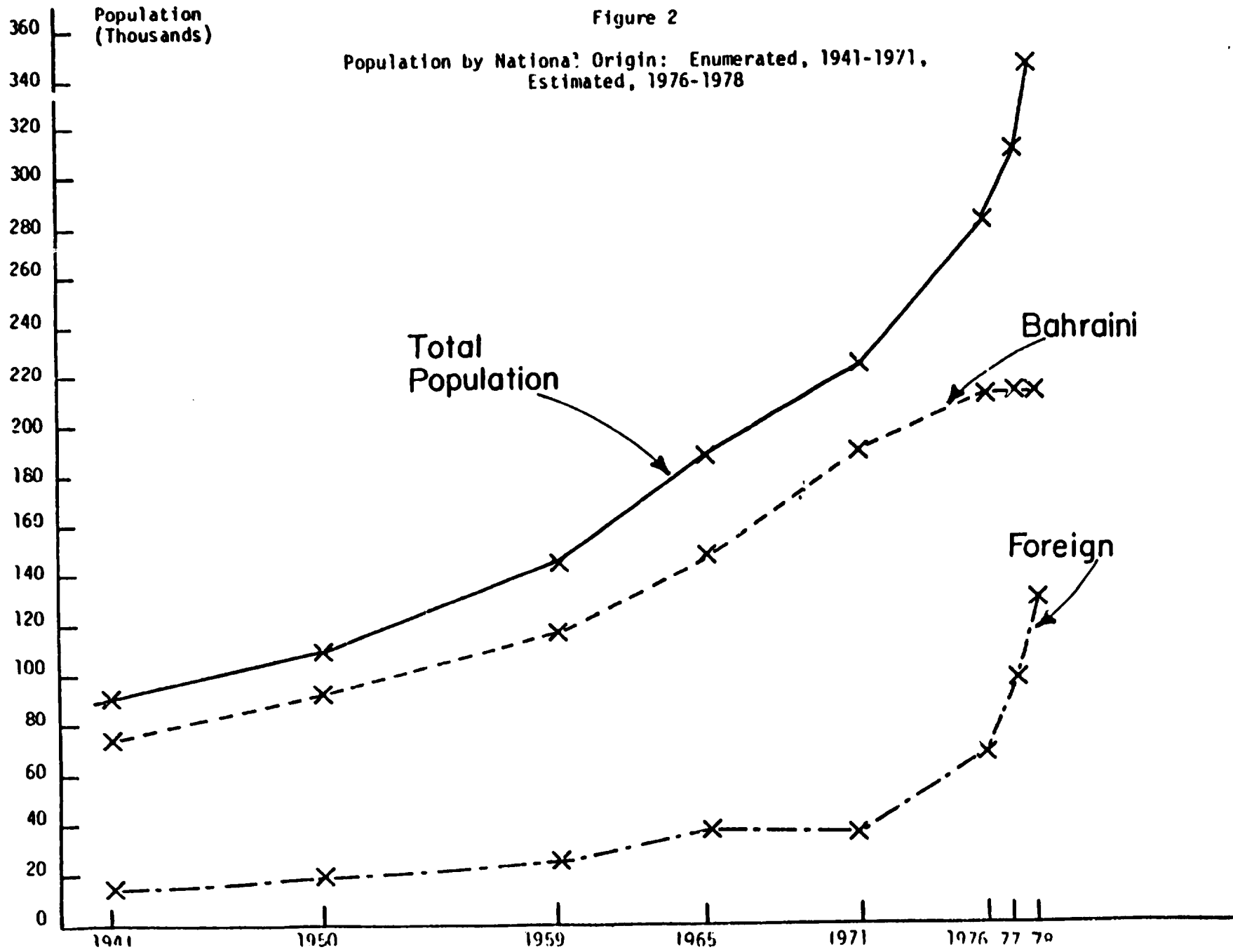
Estimations of the Population between 1960 and 1976 ^{1/}

<u>mid of the year</u>	<u>number of population in thousands of inhabitants</u>
1960	150
1970	215
1971	216
1972	220
1973	230
1974	245
1975	256
1976	260

The total number of the population and the rate of growth represents an important indicator of available and required labour in a country. According to the 1971 census the category of the population in the working age of 15 to 59 represented about 49.5 per cent of Bahrainis, compared with 23.5 per cent for the non-Bahraini residents in Bahrain. ^{2/}

^{1/} NASEP, Abd-Alfatah: "Estimation of Population in the Arab States", Kuwait, June 1975, Arab Planning Institute, in Arabic.

^{2/} "A Study on the Economic Situation in Bahrain", a report to the Seminar on Industrial Corporation among Arab Peninsular States, Riyadh (Saudi Arabia), 28-31 March 1976, p. 3, in Arabic.



high, and mortality may have declined throughout the 25-year period. Since the foreign population grew at a faster rate each intercensal period, immigration was probably important through the 1953-1965 period.

Beginning with the censuses of 1965 and 1971, reasonable estimates of these components can be made (see Appendix B, Section 2). Numbers of births, deaths, and net migrants are shown in Table 2. In Table 3 each component is related to the mid-period population in each interval. Since rates of growth are calculated on the basis of annual numbers of events, rates are not calculated for the April-1977-to-January-1978 period in Table 3.

Natural increase accounted for all the growth during 1965-1971, since emigration characterized the period. By 1977, rates of natural increase had declined, and net migration rates had increased. Emigration of students and young workers as well as declining rates of natural increase combine to slow down the growth of the Bahraini population. In the absence of emigration though, the estimated rate of natural increase implies a high growth potential and a doubling of the population in about 25 years. While non-Bahrainis experienced net emigration during 1965-1971, resulting in a loss of population, they have grown very rapidly by immigration since 1971. At least 35 per cent of the growth of the foreign population since the 1971-1976 period is due to net immigration. If current rates of growth continue, it would take merely two years for the non-Bahraini population to double in size. As a result of these trends, most of the growth of the total population of Bahrain in recent years is explained by additions to the non-Bahraini population through immigration.

Natural increase. By the time of independence in 1971, improvements in education and health over the years had facilitated a transition from high to lower vital rates. Declining mortality may have characterized much of the twentieth century, although improvements most likely followed the state investments in education and health after the development of oil resources in the 1930s.

Table 2

Estimates of the Components of
Population Change: 1965 to 1978

Nationality	Population At the Begin- ning of the Period	Net Change	Components of Change ^a		Net Migration	Percent of Net Change due to Net Migration
			Natural Increase			
			Births	Deaths		
February 1965 - April 1971						
Total	189,377	34,753	52,255	12,451	-4,793	-
Bahraini	149,929	35,468	45,585	10,458	0	0
Non-Bahraini	39,448	-715	6,670	1,993	-4,793	-
April 1971 - April 1976						
Total	224,130	57,430	43,570	9,650	23,520	41
Bahraini	185,400	27,780	37,520	8,160	-1,580	-
Non-Bahraini	38,730	29,650	6,050	1,490	25,090	85
April 1976 - April 1977						
Total	281,560	27,310	9,080	2,340	20,570	75
Bahraini	213,180	2,000	7,620	1,750	-3,870	-
Non-Bahraini	68,390	25,310	1,460	590	24,440	97
April 1977 - January 1978						
Total	308,870	32,510	6,750	1,920	27,680	85
Bahraini	215,180	1,050	5,700	1,320	-3,330	-
Non-Bahraini	93,690	31,460	1,050	600	31,010	99

^aComponents of change do not completely account for net change between 1965 and 1971 since they are estimated independently. See Appendix B, Section 2.

Sources: 1965-1971: Adjusted census data from Appendix B, Section 1; components of change from Appendix B, Section 2. 1971-1978: Appendix B, Section 3.

Table 3

Estimated Annual Rates of Population Change,
Natural Increase, and Net Migration: 1965-1977
(Rate^a per 1000 mid-period population)

Component	1965-1971			1971-1976			1976-1977		
	Total	Bahraini	Non-Bahraini	Total	Bahraini	Non-Bahraini	Total	Bahraini	Non-Bahraini
Rate of Population Change	27	34	-3	45	28	111	92	9	312
Crude Rate of Natural Increase	31	34	19	26	29	15	23	27	11
Crude Birth Rate	41	44	28	34	38	23	31	36	18
Crude Death Rate	10	10	8	8	8	7	8	8	7
Net Migration Rate	-4	0	-20	19	-2	94	70	-18	302

^aEach rate rounded independently.

The crude death rate was already quite low by the 1965-1971 period. The high concentration of foreign population in the working age, where death rates are low, accounts for their slightly lower death rate. While death rates have declined, average annual deaths have increased with population growth from about 2000 a year in the late 1960s to 2300 in 1976-1977.

Fertility has declined only recently. In the late 1960s the crude birth rate was estimated to be 41; by 1966-1977 the birth rate has fallen to 31. The more dramatic decline among non-Bahrainis reflects the dominance of males in recent migration streams to the country. Although rates were declining, the annual number of births increased throughout the period from about 3400 in the late 1960s to 9100 in 1976-1977. The growing female population of childbearing age more than counterbalanced the effect of declining birth rates.

The number of people added to the population by way of natural increase has remained remarkably stable since 1971. About 6400 were added annually during 1965-1971, and about 6000 during 1976-1977. Changes in the age structure alone would have contributed to higher levels of natural increase than actually occurred, if vital rates had been constant. Between 1971 and 1977, women in the childbearing age increased in numbers, and a larger proportion of the population was in age groups characterized by lower mortality. Since vital rates, and especially birth rates, declined, expected growth of natural increase did not occur.

Net migration. Economic development in recent years has attracted larger numbers of foreigners to Bahrain. This accelerating movement to Bahrain accounts for the rapid population growth in the country since 1971. More net immigrants were added to the population between April 1977 and January 1978 than in either the preceding year (1976-1977) or the five years following the last census (1971-1976). Migration rates for the non-Bahraini's shifted dramatically from -2 per cent during 1965-1971 to 30 per cent in 1976-1977.

The Bahraini population is experiencing the opposite trend, that of accelerating emigration. Approximately 1600 Bahrainis left the country during the five years between 1971 and 1976. More than twice that number emigrated during the nine months between April 1977 and January 1978. The emigration of Bahrainis is not an indicator of economic stagnation, but rather of increased development and modernization, a concomitant demand for higher education among the indigenous population, and the ability to pursue employment opportunities in other Gulf states.

Bahrain's high rate of population growth illustrates the maxim that humans increase their numbers when circumstances are favourable. These favourable circumstances reflect Bahrain's utilization of oil resources to obtain economic development and diversification in a region of economic growth. They also represent government efforts to interrelate economic and social activities in a modern metropolitan context. The result, for the Bahraini national population, has been a mortality decline, declining but still high fertility, a high rate of natural increase, and a high rate of temporary emigration of Bahrainis seeking advanced education as well as employment in more wealthy Gulf states. On the other hand, the pull of economic opportunities in Bahrain is attracting large numbers of foreign workers and their dependents. In the following a more detailed description of the changes in natural increase and net migration is provided. ^{1/}

^{1/} State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: 'The Population of Bahrain, Trends and Prospects', p. 13

Foreign Population

Bahrain's foreign population increased from an enumerated 15,900 persons in January 1941 to an estimated 38,700 in April 1971, 68,400 in April 1976 and 93,700 in April 1977. By January 1978, as many as 125,200 foreign nationals may have been residents of Bahrain. Foreign nationals are estimated to have made up 17 to 21 per cent of Bahrain's population from January 1941 to April 1971, and to have increased to 24 per cent of the population in April 1976, 30 per cent in April 1977, and 37 per cent by January 1978.

The national origins of Bahrain's foreign population have changed since 1941. Prior to World War II, Indians and Iranians predominated among the foreign population. Post World War II immigration to Bahrain first resulted in increases in foreign nationals from the Gulf and the Arabian Peninsula countries, then from Central and East Asia, and finally from Europe. In terms of numbers, the largest foreign populations in 1977 were from India (25,900), Pakistan (25,500), Europe (10,200), Oman (6,600), and other Asian countries (6,300).

The number of Iranian nationals in Bahrain's population fluctuated from a reported high of 7,600 persons in 1941 to a second peak of 7,200 in 1965. This population apparently declined to an estimated 3,000 in 1976. Iranian nationals comprised 3 per cent of Bahrain's population in 1941, but only one per cent of the population in 1977. Foreign Arab nationals, including Gulf Arabs, increased in number during the early 1960s, decreased slightly during the late 1960s, and increased somewhat thereafter. The percentage of foreign Arab and Gulf Arab nationals peaked in 1965 and then decreased. Decreases in numbers and percentages of Omani nationals since 1971 may represent restrictions on the emigration of dependents of male workers from Oman.

From 1941 to 1977 Indian and Pakistani nationals in Bahrain increased from 1,400 persons to an estimated 51,300 persons. Although these foreign nationals accounted for less than 2 per cent of the country's population in 1941, their share of the total population increased to 17 per cent in 1977. Since 1971, and especially between 1976 and 1977, other Asians have increased very rapidly. The number of European nationals has tripled since 1971, and the population from the United States has increased four times. The increasing diversity of foreign nationals residing in Bahrain primarily reflects differences

in nationality-specific migration rates.

Net Migration, 1971-1977

Total net migration. Table 7 indicates estimated net migrants and estimated net migration rates for the total Bahraini and foreign populations as well as for specific nationalities, from April 1971 to April 1977. Estimates of net migration and net migration rates were generated as by-products of Table 6; the same limitations apply to the data in Table 7 and in Table 6. Estimates for the total Bahraini and non-Bahraini populations are assumed to be more accurate than those for specific non-Bahraini nationalities.

From 1971 to 1976, Bahrain's annual net migration rate was estimated at 2.1 per cent. Comparable estimates for Bahrainis and foreigners were - 0.2 per cent and 13.0 per cent, respectively. From 1976 to 1977 the estimated net migration rate was 7.3 per cent, and estimates for Bahraini and foreign nationals were -1.3 per cent and 35.7 per cent, respectively. Despite increasing net emigration among Bahrainis, the percentage of total growth accounted for by net migration increased from 40 for the period of 1971 to 1976, to 75 for 1976 to 1977, and to 85 for 1977 to 1978.

Nationality-specific net migration. The increasing net migration rate to Bahrain is contributing to modest population increments of foreign Arab nationals (Table 7). The annual net migration rate for foreign Arabs, estimated at -0.3 per cent from 1971 to 1976, resulted from a net emigration rate of -8.1 per cent for Gulf Arab nationals, a -9.1 per cent annual net emigration of Omanis, and a -15.3 per cent net emigration of Qataris. From 1976 to 1977, however, the annual net migration rate for foreign Arabs increased to 7.2 per cent and for Gulf Arabs to 16.2 per cent. These changes were due primarily to the reported immigration of Qataris, which appeared to be a short-term phenomenon rather than a long-term trend.

Estimated annual net migration rates for non-Arab nationals increased from 24.2 per cent annually from 1971 to 1976, to 46.5 per cent from 1976 to 1977. The level of net emigration increased for Iranians, although this may be the result of citizenship granted to some Iranian nationals. Extre-

Table 7

Estimated Net Migrants and Net Migration Rates
by Nationality: 1971-1977

Nationality	Net Migrants Apr. 1971- Apr. 1976	Mean Annual Net Migration Rate 1971-1976 ^a	Net Migrants Apr. 1976- Apr. 1977	Net Migration Rate 1976-1977
Total	23,515	2.1	20,566	7.3
Bahrain	-1,575	- 0.2	-3,872	- 1.8
Non-Bahrain	25 090	13.0	24,438	35.7
Arab	- 693	- 0.8	1,343	7.2
Gulf	-4,849	- 8.1	1,388	16.2
Qatar	- 118	-15.8	1,096	2,236.7
Oman	-5,000	- 9.1	- 785	-10.7
UAE	4	0.1	1,118	126.5
Kuwait	265	126.2	- 41	-13.1
Saudi Arabia	- 589	- 8.6	102	10.9
Other	4,745	23.6	- 147	1.6
Non-Arab	25,783	24.2	23,095	46.5
Iran	-1,538	- 5.9	-1,308	-30.5
India	9,928	29.2	8,120	46.3
Pakistan	12,675	46.1	6,399	34.0
Other Asia	1,965	210.6	4,140	190.7
Other Africa	- 2	- 0.8	60	115.4
Europe	875	5.3	5,635	124.3
USA	1,180	84.9	- 358	-24.0
Other	700	264.2	407	53.6

^aNet migrants 1971-1976 divided by 1971 population, divided again by 5, multiplied by 100.

^bNet migrants 1976-1977 divided by 1976 population, multiplied by 100.

mely high net migration rates were observed for Indians and Pakistanis in both periods. From 1976 to 1977 these rates for Indians and Pakistanis were 46.3 and 34.0 per cent, respectively. During the same time, the net migration of 4,100 other Asians resulted in a net migration rate of 190.7 per cent. During this time the net migration rate for European nationals was 121.3 per cent.

The largest numbers of reported net migrants from 1971 to 1976 were from Pakistan (12,700), India (9,900) and from other Arab countries (4,700). The largest number of net migrants from 1976 to 1977 were from India (3,100), Pakistan (6,400), Europe (5,600) and other Asian countries (4,100). Bahrain's current foreign population, like that of other small oil-producing nations in the Middle East, is extremely large in relation to its total population. This foreign population is increasing in diversity. Its presence in Bahrain can best be accounted for in terms of social and economic changes occurring since Independence.

Migration Determinants, 1971-1977

Factors attracting migrants. Migrants are attracted by economic opportunities and population size of their destinations (Stouffer, 1940; Ravenstein, 1885). They move from less to more technologically developed areas over established migration streams (Davis, 1974; Lee, 1966); Ravenstein, 1885) and may be inhibited from migrating by distance, as well as by economic, social, and legal barriers (Lee, 1966; Zipf, 1946). These factors appear descriptive of migration to Bahrain since Independence in 1971.

Factors favoring migration to Bahrain have been enhanced by recent economic development. Further, levels of technology in Bahrain are rising rapidly. Bahrain's indigenous labour force, which has limited education, and which includes few females and relatively few professional, technical, and kindred workers, cannot yet meet the demands for the range of skills generated by economic and technological development. Skilled foreign workers are brought to Bahrain to introduce new technologies, while less skilled workers are imported to construct and operate new facilities and to meet short-term labour demands in both the public and

private sectors. Bahrain's small size and its entrepôt role in relation to its larger and more prosperous neighbours has led to wide annual fluctuations in migration.

The numbers of cumulative net migrants described in Table 3 and Figure 5 for calendar years 1971 through 1977 reflect the following benchmarks: (1) Bahrain's Independence in 1971, (2) OAPEC and Bahrain oil-export-price increases in 1973, (3) land fill and Arab Shipbuilding and Repair Yard construction projects beginning in 1976, (4) continued housing construction, and (5) offshore banking and additional construction in 1976 and 1977.

The cumulative net migration to Bahrain illustrated in Table 3 and Figure 5 captures more migration-related events (with 7 observations, one for each year) than the previous description of net migration (based on two observations, for 1971 to 1976 and for 1976 to 1977). Cumulative rather than annual net migration is described in order to compensate for annual fluctuations and to illustrate migration impacts since Independence. Annual net migration for any year in the series may be determined by subtracting the cumulative net migration for the previous years from that for the year in question.

From 1971 through 1977 there was a net emigration of approximately 3,300 Bahrainis. Of these, several thousands were enrolled in foreign colleges and universities, and most of the remainder had apparently taken positions in other Gulf states. Approximately 79,300 foreigners migrated to Bahrain during this seven-year period. More than one half of the foreign net migrants were added in the calendar year 1977. Migrants of various national origins are characterized by different labour skills, and appear to have responded differently to economic determinants of migration during the 1970s.

When Independence was obtained, Bahrain was experiencing net emigration. Bahrain lost 3,100 persons in 1971, and 1,300 in 1972. OAPEC- and Bahrain-oil-price increases occurred in 1973, when there were 12,700 net migrants. Of these, one third were Bahraini, and two thirds were fo-

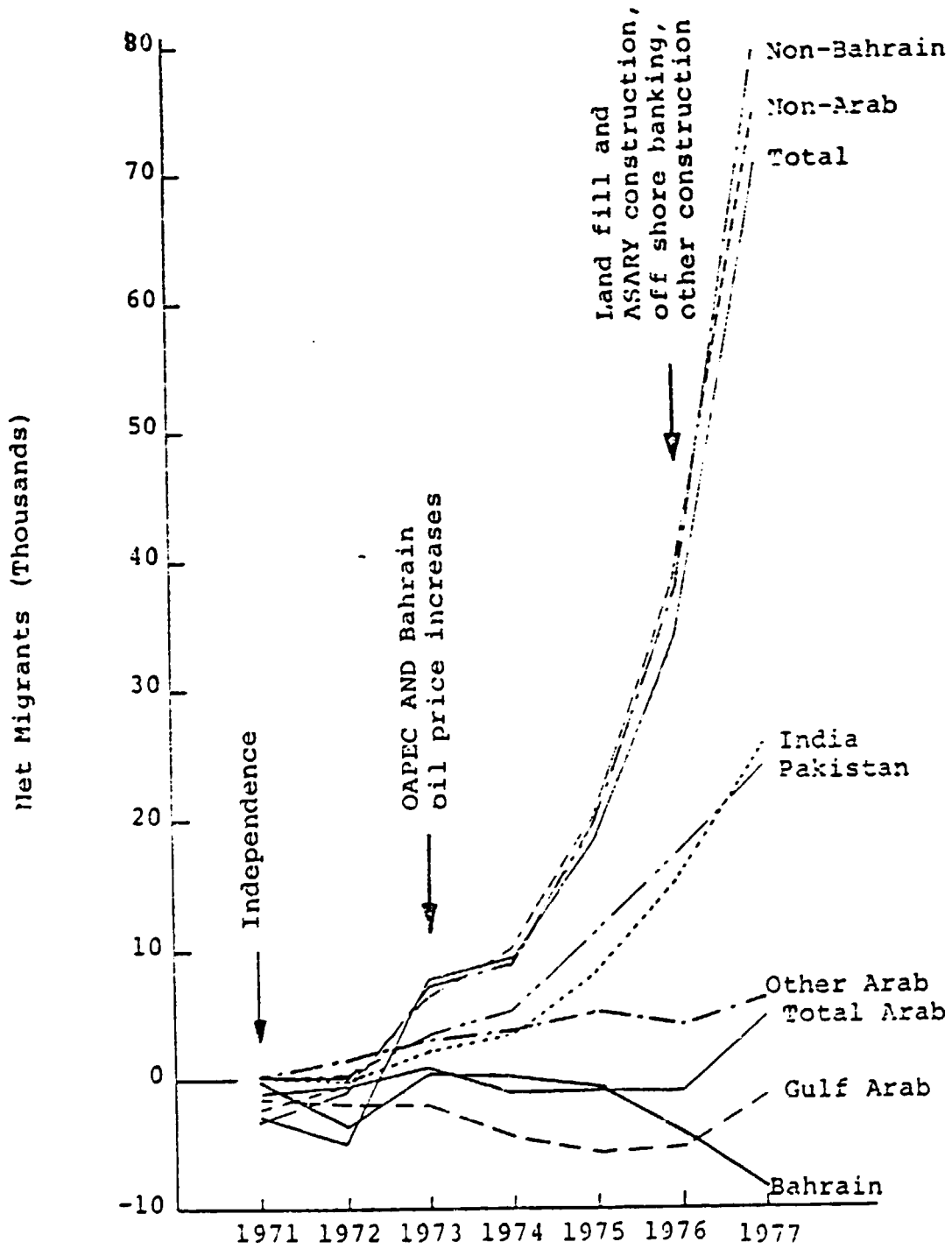
Table B
Cumulative Net Migration by Nationality: 1971-1977^a

Nationality	1971	1972	1973	1974	1975	1976	1977
Total	-3,116	-4,955	7,717	9,627	18,958	34,077	70,933
Bahrain	39	-3,645	570	628	- 644	-4,327	-8,768
Non-Bahrain	-3,155	-1,310	7,147	8,999	19,602	38,404	79,751
Arab	-1,052	- 518	1,076	- 936	- 907	-1,110	4,871
Gulf	- 915	-2,510	-2,310	-4,058	-5,026	-5,242	954
Qatar	140	- 551	- 932	- 477	- 247	404	2,834
Oman	-1,134	-2,271	-1,810	-3,687	-5,016	-6,029	-6,607
UAE	- 11	163	429	- 124	- 38	116	4,122
Kuwait	90	149	3	230	275	327	5
Saudi Arabia	- 317	526	230	- 412	- 864	- 22	-2,199
Other	180	1,466	3,156	3,534	5,003	4,154	6,116
Non-Arab	-2,103	- 792	6,071	9,935	20,509	39,514	74,880
Iran	- 379	- 856	- 924	- 574	-1,394	-2,328	-4,762
India	140	- 259	2,149	3,399	8,111	15,537	25,728
Pakistan	74	242	3,825	5,262	11,127	17,406	24,161
Other Asia	66	127	294	447	1,163	4,435	11,131
Other Africa	8	13	- 23	- 11	30	- 92	516
Europe	-3,052	-1,476	- 729	- 361	- 893	2,872	14,371
USA	149	454	1,110	1,602	1,403	633	1,515
Other	891	973	359	171	877	1,051	2,160

^aData are for calendar years.

Figure 5

Cumulative Net Migration by Nationality: 1971-1977



reign nationals. Among the foreign net immigrants approximately one fifth were from other Arab countries, and the remaining four fifth were from non-Arab countries.

Bahrain is easily accessible to India and Pakistan, two very large developing nations with very low per-capita income. There is a long tradition of migration from the subcontinent to Bahrain. Indian and Pakistani nationals responded rapidly to the economic growth and to labour requirements generated in Bahrain by the oil-price increments in 1973. These two groups constituted almost nine tenths of the non-Arab net migrants in 1973, and almost one half of the total net migrants that year.

Employment in Bahrain of Indian nationals appears to be extensive in the commercial and service activity engendered by economic development. The annual net migration rate of Indians to Bahrain was increasing from 1974 through 1977. By the end of 1977, 25,700 Indian net migrants accounted for 36 per cent of the total number of net migrants added to Bahrain since Independence. Pakistani nationals in Bahrain tend to be employed in the construction industry. The net migration of Pakistanis increased rapidly during the construction boom years of 1975 and 1976 as well as in 1977. From 1974 through 1977, Pakistanis accounted for 34 per cent of the total net migration to Bahrain.

The net migration of other Asians was not extensive until 1975 and 1976, when Koreans began to work in land reclamation and drydock construction projects. By the end of 1977, 11,200 other Asians had accounted for 16 per cent of the total net migrants since Independence. There was negative cumulative net migration of Europeans until 1976, when offshore banking activity became important. Positive cumulative net migration was generated in 1976 and 1977, apparently by offshore banking and by commercial and service industry development. European net migration since Independence is estimated at 14,400 persons, or 20 per cent of the cumulative migration since that time.

Migration effectiveness. It has been shown that migration to Bahrain since Independence can be decomposed to a variety of immigration and emigration streams. The varying effectiveness of these streams also influences the numbers of net migrants of various nationalities to Bahrain. Effectiveness here is indexed by (1) the proportion of gross immigration or emigration which is effectively added to, or subtracted from, the population, i.e. the ratio of net migrants to arrivals or departures, and (2) the ratio of net to gross migration, i.e. the proportion of immigration and emigration combined which is effectively retained or lost over an observation period. The higher the ratio of net to gross migration, the more effective the migration stream.

Table 9, which shows the volume and ratios of arrivals and departures for selected nationalities from 1971 through 1977, describes the recent effectiveness of migration to Bahrain. Since Independence, Bahrain has retained approximately 3 per cent of the arriving population from foreign origins, and approximately 2 per cent of all its gross migrants. From 1971 through 1977, migratory activity generated a net loss of Bahrainis and a net gain of non-Bahrainis. The retention rate for non-Arab arrivals is almost 10 times higher than for Arab arrivals. In recent years, the most effective migration streams to Bahrain have been those which have included the non-Arab populations from India, Pakistan, and other Asian countries. In contrast, migration effectiveness is negative for Bahrainis and low for Arab nationals.

Table 10 indicates the annual proportions of gross immigration or emigration added to or subtracted from the population from 1971 through 1977. Since 1975 these ratios have been negative for Bahrain nationals and have been increasing. Thus increasing proportions of departing Bahraini nationals are being subtracted from Bahrain's population (from $-.002$ in 1975 to $-.015$ in 1977).

No clear trends in the migration effectiveness of non-Bahraini Arab nationals are apparent from Table 10. In contrast, constantly

Table 9

Measures of Net Migration and Migration Efficiency
by Selected Nationalities: 1971-1977

Nationality	Arrivals	Departures	Net Migrants ^a	Gross Migrants ^b	Ratio, Net Migrants to Arrivals (+) or Departures (-)	Ratio, Net Migrants to Gross Migrants
Total	2,139,230	2,068,247	70,983	4,207,477	.033	.017
Bahrain	561,460	570,228	-8,768	1,131,688	-.016	-.008
Non-Bahrain	1,577,770	1,498,019	79,751	3,075,789	.051	.026
Arab	617,983	613,112	4,871	1,231,095	.008	.004
Gulf	250,743	249,789	954	500,532	.004	.002
Saudi Arabia	237,468	239,667	-2,199	477,135	-.009	-.005
Other	129,772	123,656	6,116	253,428	.047	.024
Non-Arab ^c	959,787	884,907	74,880	1,844,694	.078	.041
India	155,517	129,779	25,738	285,296	.165	.090
Pakistan	127,749	103,588	24,161	231,337	.189	.104
Other Asia	80,816	69,625	11,181	150,431	.138	.074
Europe	398,150	383,779	14,371	781,929	.036	.018

^aArrivals minus departures.

^bArrivals plus departures.

^cSelected non-Arab nationalities; do not add up to non-Arab total.

Table 10

Annual Ratios of Net Migrants to Arrivals (+) or
Departures (-) by Selected Nationalities: 1971-1977

Nationality	1971	1972	1973	1974	1975	1976	1977
Total	-.016	-.012	.012	.011	.015	.021	.033
Bahrain	.001	.034	.003	.002	-.002	-.010	-.015
Non-Bahrain	.022	.004	.016	.014	.022	.032	.051
Arab	.015	-.003	.005	-.003	-.002	-.002	.008
Gulf	-.003	-.039	-.024	-.031	-.030	-.025	.004
Saudi Arabia	-.012	.096	.003	-.004	.000	-.000	-.009
Other	.019	.058	.077	-.060	.063	.040	.047
Non-Arab ^a	-.029	-.005	.025	.028	.041	.056	.078
India	.012	-.010	.053	.058	.098	.137	.165
Pakistan	.013	.020	.173	.150	.193	.177	.189
Other Asia	.041	.032	.038	.036	.057	.108	.138
Europe	-.082	-.020	-.007	-.002	-.004	.010	.004

^aSelected non-Arab nationalities; do not add up to non-Arab total.

increasing annual proportions of non-Arab nationals arriving in Bahrain have been added to the population since 1971. Migration effectiveness for these populations increased from -.029 in 1971 to .073 in 1977. By 1977 these proportions were highest for Pakistanis (.139), followed by Indians (.165), and other Asians (.135).

There are increasing differences between nationality categories in the effectiveness of their migration to and from Bahrain. The emigration of Bahraini nationals is leading to slower growth of the Bahraini population. The increasing effectiveness of non-Bahraini migration has been associated with rapid population growth of non-Bahrainis in recent years. Since the immigration of Arab nationals is not as effective in generating population gains in Bahrain as the immigration of non-Arabs, the composition of the non-Bahraini population includes a growing proportion of non-Arab Asians.

Current trends. The question remains as to whether net migration remained at high levels or began to level off in 1976 and 1977. In general, the effectiveness of migration to Bahrain has increased in times of increasing total migration, and then leveled off after total migration has peaked. For example, Table 10 indicates that major increases in the proportions of total gross immigrants added to the population did not occur until after the oil price increases of 1973, when there was increasing total migration to Bahrain. The effectiveness of migration of Pakistanis to Bahrain increased rapidly with the increase in migration from Pakistan in 1973, and has then tended to level off. In contrast, the effectiveness of migration of Indian nationals to Bahrain was still increasing in 1977. Indian migrants, who tend to work in service and commercial activities, have been able to bring more dependents to Bahrain than the lower paid Pakistani labourers and construction workers. The high effectiveness of migration from other non-Arab Asian countries is also a recent phenomenon. Furthermore, if previous trends in migration effectiveness continue, the recent increase in European migration may soon be followed by an increase in migration effectiveness, as Europeans settle in Bahrain and bring their dependents.

Quarterly changes in net migration during 1976 and 1977 provide further information regarding the direction of recent migration trends. These changes are described in Figure 6 for total non-Bahraini, Indian, Pakistani, and other non-Bahraini nationals. Figure 6 indicates that total net migration of non-Bahrainis follows seasonal changes in climate. Net migration peaks in the cooler last quarter of the year, declines during the first quarter, bottoms out in the second quarter just prior to the hot summer, and then climbs as fall approaches. There are some variations in this pattern for different nationalities. Net migration examined by quarter does not indicate a leveling off of net migration during 1976 and 1977. The regression equations, in which the volume of net migration (Y) is related to time (quarter in 1976 and 1977 = X), confirm the results shown in Table 10: Pakistani immigration is stable, Indian immigration is increasing, and there are substantial increases in other non-Bahraini immigration.

Migration tends to lag behind the economic opportunities which attract migrants. It remains to be seen whether the total numbers of net migrants to Bahrain will continue to increase, despite a reported leveling off of economic opportunities in Bahrain. However, the increasing diversity of Bahrain's economy may be fostering a higher volume of migration than would a more simple economy. Each new economic development thus tends to generate its own migration stream to Bahrain.

Migration Impacts

The population impact of migration to Bahrain can be indexed by estimates of the net population change attributed to net migrants and their children from April 1971 to April 1977. Since these estimates are sensitive to fertility assumptions as well as to estimates of migration, they are to be viewed with caution. Net population changes attributable to migration include additions of children born to migrants at destination minus deaths of migrants and their children. The components of change presented earlier underestimate the full impact of migration, since the fertility of immigrants is included with the fertility of the foreign stock in the estimate of births. All population changes resulting from migration are attributed to non-Bahrainis in these calculations.

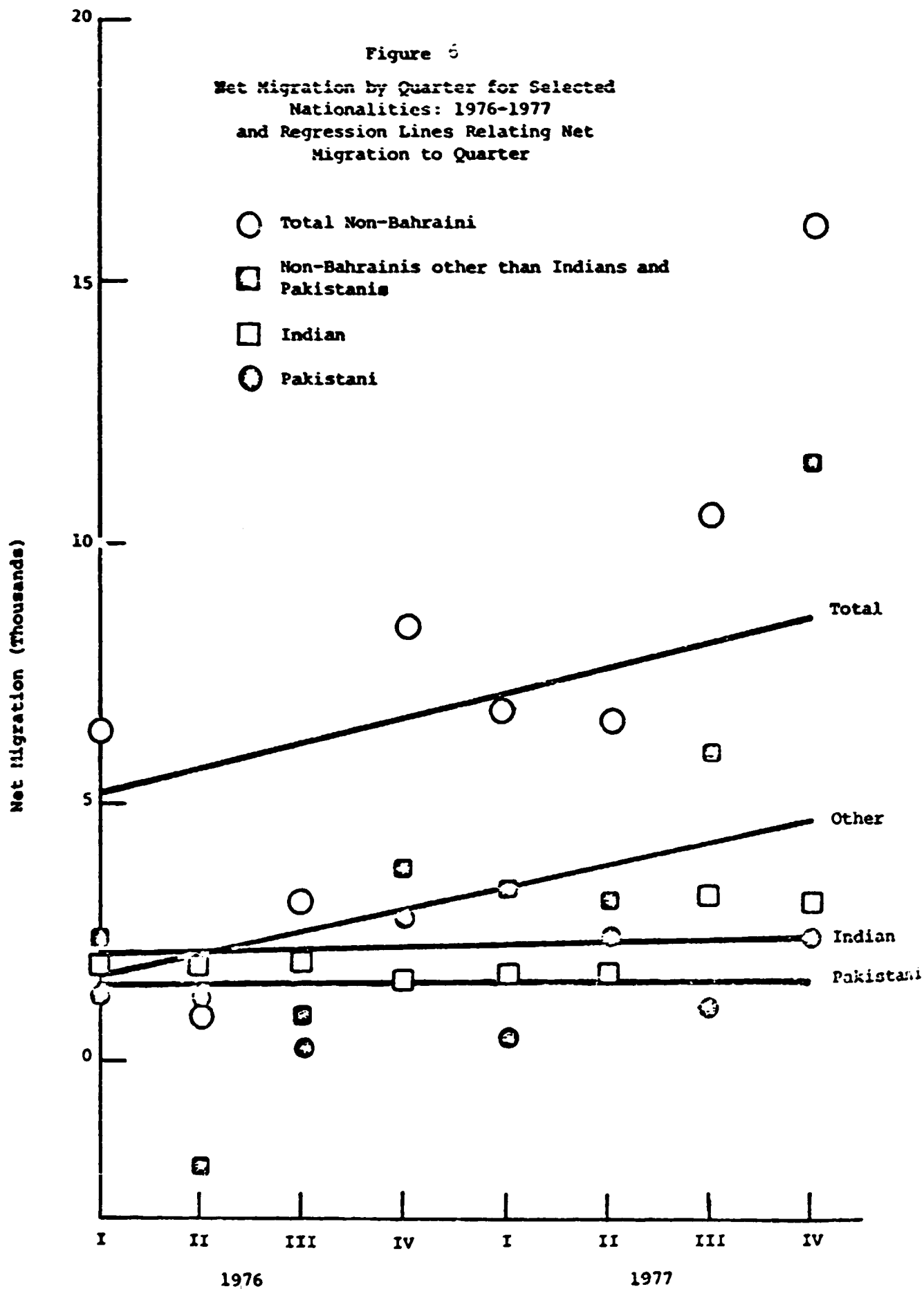


Figure 6 continued

Regression equations relating net migration (Y) to time (X):

Total non-Bahraini net migrants

$$Y = 5071.61 + 516.00 X$$

Non-Bahraini net migrants other than Indians and Pakistanis

$$Y = 1571.12 + 442.18 X$$

Indian net migrants

$$Y = 1920.24 + 62.89 X$$

Pakistani net migrants

$$Y = 1580.11 + 16.92 X$$

CHAPTER 2

ECONOMIC AND INDUSTRIAL POLICY :
RECENT DEVELOPMENTS

1. THE ECONOMIC DETERMINANTS

Two main structural categories determine the state of Bahrain's economy.

On the one hand, its strategic and commercial position entitles Bahrain to a "geographical rent", the counterpart to services offered by the Emirate's economy. This is a major and permanent advantage of which many Bahrainis have always benefitted, although the pattern of these services has changed due to changes in the last 50 years in the pattern of international trade and transportation.

On the other hand, the Emirate's own resources constitute the second structural determinant of its economy. In this respect, the pattern of these resources with their impact on the state and growth of the domestic industry and economy has evolved through three successive phases.

- 1.1. In a first phase, ending in the early 1930s, the human and natural resources determining the economic structure were articulated in the pearl-diving industry and export trade.
- 1.2. During a second phase, crude oil extraction and refining replaced the pearl "industry" as an income source additional to that of trade and other services, constituting together the main determinants of domestic industrial and economic activity. It must, however, be pointed out that - as the oil extraction and refining was foreign-owned and controlled, with its capital-intensive character and multinational labour in the Emirate - this newly established sector had had its main revenues captured for several decades by the foreign oil concession holders, and its wage incomes shared between Bahrainis and foreign labour. As a result, this oil sector was less capable than the pearl "industry" in mobilizing large numbers of local labour and diffusing revenues within the Bahraini society. This second phase lasted from the mid-1930s up to 1970.

1.3. A third phase was opened in the early 1970s with the mobilization of the further industrialization of domestic natural resources. Thus, the local oil-associated gas, more recently natural gas as well, added to the local hydrocarbon resources, these being the main determinants of the domestic industrial and economic structures, jointly with the other but permanent determinant of the income from the geographical position-related services. However, the role of the extractive and refining sector in mobilizing labour has stagnated in spite of the increases of its revenues and their further utilization in local economy.

As to the new gas-processing industry implemented in the early 70s it did increase both job opportunities and industry's contribution to Bahrain's national product, which is due in particular to the aluminium downstream industries, since they are less capital-intensive than the main aluminium refining plant. Nevertheless, this new generation of industries has not been multiplied, while the main new projects are presently gas-gathering and highly capital-intensive.

A careful look at the development of the labour sectoral sharing since the turning years of the early 1930s, and more particularly since the establishment of the gas-based industry, shows that the services sector continues to be predominant in the labour's pattern and sectoral sharing within the Bahraini economy. Extracting industries are a secondary employer, and manufacturing employs only a moderate and almost stagnant share of Bahraini labour. The gas-based industries, mainly the aluminium refining and manufacturing, relayed as labour-employing in the early 1970s the oil refining industry, which had attained its level of saturation a long time ago. Yet, the achievement of plants construction added to the policy of labour pressure applied by ALBA proved somewhat quickly the limits to this most recent phase of labour mobilization. As a result, a new and strong move to extend and diversify the banking and other services sectors has been easily observed during the last four years in Bahrain.

2. BASIC ECONOMIC PHILOSOPHY OF BAHRAIN

Up to now Bahrain has not applied any central integral plan to develop the economy. However, this does not mean an absence of deliberate and direct Government intervention in the economic sphere. Authorities apply a general philosophy, a multi-aspect policy, and a set of basic rules, which altogether govern the governmental intervention in the various sectors of Bahraini economy. Due to the decline in oil reserves and output, with the progress in trade and education developments in the Emirate, economic intervention by the Government has emerged earlier and has been intensified more than in the other Gulf Emirates, except for Kuwait where historical and political factors added to the high level of oil output, income and "surpluses" and the important services activity had stimulated a build-up of the state starting in the early 1960s.

The role of the state in Bahrain's economy is, in fact, similar to that of any of the other Gulf states; it has four constitutive guidelines:

2. 1. The definition of the bases and conditions for economic activity.
2. 2. The granting of multiple and multiform facilities to industrial projects.
2. 3. The exemption from taxes and customs duties of the industry's imports of its machinery and raw material requirements.
2. 4. The encouragement of foreign investments within joint ventures by exempting them from income taxes and by granting them full latitude in transferring their capital funds and their profits.

3. THE STATE'S ECONOMIC INTERVENTION

The Government has not established either a specialized industrial bank or a development corporation which, inter alia, would be useful in the management of facilities provided by the industrial estate, now in being, and the new ones planned. The mission does not consider that a specialized bank is needed but it does favour a development corporation for the following purposes:

- (a) To set up industrial estates and to plan the services - roads, electricity, water, sewerage, etc.
- (b) To promote the setting up of industries on industrial estates including assistance in obtaining financing.
- (c) To administer the estates.
- (d) To give advice on managerial and technical matters to small industries.

The Corporation should become self-financing, drawing income from renting or selling industrial sites, and should not engage in setting up industries itself. ^{1/}

¹ WORLD BANK: Report No. 2058-BH: "Bahrain, Current Economic Position and Prospects", June 28, 1978, p. 15

The Government has played an active role in the industrialization process. It has acquired a large equity participation in the aluminium smelter (nearly 30 per cent), owns outright the aluminium extrusion plant, participates in the shares of the proposed NGL plant and the Dry Dock, and has set up a public corporation for producing poultry products. There does not appear to be any particular set of guidelines for Government investment except a willingness to come in when private equite capital is reluctant to do so. ^{1/}

The non-financial role of the Government, apart from participation in the management of ALBA and other major projects, is to regulate the entry of new firms. This seems to be done with considerable dispatch and freedom from onerous levies. It does reserve and sometimes exercise the right to withhold a permit to enter, if it considers the field already well covered. ^{1/}

^{1/} WORLD BANK: "Bahrain, Current Economic Position and Prospects", Washington, June 28, 1978, World Bank, Report No. 2058-BH, p. 15

The future depletion of the hydrocarbon deposits, in economic terms, is a threat which the governments of the Gulf emirates foresee, thereby moving actively to assure a diversification of their sources of income. What is meant by this strategic cliché is to transform into a diverse and relatively self-sustained economy an economic structure, which is unilateral and extractive, with hypertrophic mining production, fully integrated in international export markets, inseparable from the other - hypotrophic - agricultural and manufacturing sectors. ^{1/}

As it has been said already, crude oil was discovered in Bahrain as early as 1934. It has been extracted very early, and the two US-multinational oil corporations associated within Bapco established a giant oil refinery in 1936. It was, therefore, not accidentally that the first Gulf emirate where oil was discovered, in order to face the depletion of its oil wealth, sought to create industrial plans substituting the oil-extracting industry. However, due to the modest volume of production and its short-term depletion prospects, and because of heavy expenditures on administration and infrastructure, the rent received from oil could not easily and sufficiently allow the necessary accumulation which would be at the basis of alternative industrialization. This was particularly true in 1974, the year di-

1/ EL-ZAIM, Issam: "Arab Industrialization Policies and the Aspired International Economic Order" in "The New International Economic Order in the Arab World", Kuwaiti Fund for Arab Economic Development, Kuwait; proceedings of the Seminar on the New International Economic Order in the Arab World, Kuwait, March 1976, sponsored by the Kuwaiti Fund for Arab Economic Development, the Kuwaiti Economic Society, the Arab Institute for Planning, and Kuwait University, pp. 129 - 150, text in Arabic.

rectly following the crude price multiplications and the significant decline of consumption in the developed capitalist countries: during that year Bahrain's exports valued at 1056,3 million dollars, and its imports amounted to 1126,2 million dollars, which constituted a notable trade deficit. ^{1/} This was not an exceptional event, but rather the illustration of a new situation Bahrain was confronted with, resulting from the oil-production decline and the inelasticity of public and private expenditures as well as capital requirements for development projects. It can be said that the immediate depletion of the oil reserves, the absence of any "capital surpluses", and the major difficulty of succeeding in the accumulation for industrial development were strong factors pushing for alternative joint-venture-based industries.

In fact, the actors behind industrialization in Bahrain, and in almost all the other Gulf emirates, are both foreigners and nationals. While the Bahraini government and private interests seek to diversify sources of income and to prepare the post-oil-era, but face the constraint of capital financing, multinationals and other private interests from the developed countries with market economies seek partnerships in the Gulf area to upgrade crude oil and to take advantage of the very cheaply priced natural gas generally associated with oil in the Gulf area, bringing in counterpart technological know-how and management resources. At a later stage, and as shown by the Bahraini aluminium industry, some neighbouring Gulf interests with better mines and financial means, and probably with political objectives, will enter into these partnerships, substituting, though partly, those foreign partners whose interest diminishes and who, therefore, seek to retreat.

1/ "Gulf Basic Data" in "The Middle East", No. 17, London, March 1976, p. 41, cited by BE-EMF, 1980.

The Project Expenditures of the Ministry of Industry and Development
1979 - 1981

In addition to the main expenditures for new and on-going projects implemented essentially through joint-venture operations, the Ministry of Industry and Development has scheduled its own capital expenditures for new and on-going projects.

Projects amounting to 2.427 thousand Bahrain dinars have been projected over the years 1979-1982. According to available data, shown in the following table, some 1450 thousand dinars were scheduled on new projects in 1979, 774 thousand in 1980 and 200 thousand in 1981. No capital expenditures were scheduled for the year 1981 and after.

**PROJECTED CAPITAL EXPENDITURES FOR NEW AND ON-GOING PROJECTS OF THE MINISTRY OF
INDUSTRY AND DEVELOPMENT, 1979 - 1982 (in thousand Bahrain Dinars at Current Prices) ^{1/}**

Projects Total Cost	1979		1980		1981		1982 and after	
	(1) in Progress	Projects New (2)	(1) in Progress	Projects New (2)	(1) in Progress	Projects New (2)	(1) in Progress	Projects New (2)
4,424	12	1,450	-	774	-	200	-	-

^{1/} Bahrain, Ministry of Finance and National Economy.

4. Evolution of Sectors' Shares in the Gross National Product
(GNP) between 1973 and 1977 in Constant
1977 Market Prices (1)

Agriculture and fishing, over the years 1973-1977 had their combined gross product, at constant 1977 market prices, decreasing, though slightly, by 0.8 million Bahraini Dinars. However, the share of this primary sector in total gross national product at constant 1977 market prices fell from 4,715 per cent in 1973 to 1,713 per cent in 1977.

Mining Sector, oil and other extracting, continued to weigh heavily in the gross national product, but its share has declined. In real terms, the oil and mining sector's gross product decreased, very slightly, by 14.9 million Bahraini Dinars between 1973 and 1977. However, the sector's share in the country's gross national product sensibly decreased from 50.42 per cent in the base year to more than 35.39 per cent in the end year.

The decline in the two primary components of the primary sector, i.e. agriculture and fishing and oil extracting other mining contrasts with an opposite increase in the gross product both of manufacturing, and the different components of services, mainly trade and services, banking and insurance and real estate as well as public administration and defense. The fall of the percentage shares, rather sensitive in the case of agriculture and fishing, dramatic in that of oil extracting and other mining, in the gross national product as a whole, is explainable by those rises in the gross products of manufacturing and services sectors.

Indeed, manufacturing had its domestic products, valued at constant 1977 market prices, multiplied almost by 2.5, increasing by 66.5 million of Bahraini Dinars, between 1973 and 1977, an annual average of B.D. 16.625 million or 34.2 per cent per annum over the period. As to the share of this sector in the GNP, it rose from almost 11.78 per cent in the base year to almost 21 per cent in the end year. A reading of the developments of the different branches within this sector, namely oil refining, aluminium smelting and processing and other manufacturing, as shown in the following table permits to state that different branches of manufacturing, flour milling excepted, have all contributed to its achievement. Manufacturing has therefore achieved an unusual rate of growth (34.2 per cent per annum) and strongly consolidated its weight in the GNP. This can be explained mainly by the boost in construction, the successive increases in oil prices and the commercial launching of the aluminium industries, together with other manufacturing developments.

(1) Analysis made here is made by using figure estimates of World Bank: World Bank: "Bahrain Economic Position and Prospects". Washington, June 28, 1978, Report No. 2058 - EE, Annex, Table 2.2. Gross National Product by Industrial Origin at Constant 1977 Market Prices.

Coming to Construction, its gross income valued at constant 1977 market prices has almost doubled passing from B.D. 34.9 million in 1973 to B.D. 61.9 million in 1977, the rise having accelerated in 1975-1977. Therefore, the construction gross product increased over this four-year-period at an annual average of B.D. 6.675 million or slightly above 19 per cent. In addition, the sector's share in GNP rose from nearly 8.45 per cent in the base year to almost 11.3 per cent in the end year.

The progress in this sector is due both to structural factors, namely population growth and urbanization, and others, conjunctual, namely the substantial increases in the oil prices since 1973.

Trade and Services sector achieved also an important growth since its gross product value almost multiplied by two, rising from B.D. 56.7 million to B.D. 106.7 million, between 1973 and 1977. Over the period this sector grew rapidly at an annual average of B.D. 12.5 million, a rate of more than 22.04 per cent per annum. As to the sector's share in GNP it did also increase, moving from more than 13.74 per cent in 1973 to nearly 19.46 per cent in 1974.

At the same time, real estate had its gross product value increased from B.D. 23.9 million in 1973 to B.D. 31.8 million in 1977. Hence the annual average of value growth was of B.D. 2.025 million. This represented an average rate of growth of 11.8 per cent per annum.

It was the Banking and Insurance sectors which were the most stimulated and boosted sectors. In constant 1977 market prices, the value of its gross product jumped from B.D. 4.1 million in 1973 to B.D. 49.2 million in 1977, an increase of more than twelve folds. This means an annual average of growth valued at B.D. 11.275 million and represents an average rate of exactly 275 per cent per annum. This reflects the banking and insurance explosion in Bahrain during the considered period and materializes the Emirate's move to specialize in banking and insurance. The phenomenon's effect on the economic structure appears in the sharp rise of the banking and insurance's share in GNP which had been slightly above 0.99 per cent (almost 1%) in 1973 then attained almost 9 per cent in 1977.

The sector of transport, storage and communications had also its gross product increased from B.D. 22.9 million to B.D. 38.8 million during the years 1973-1977. This gave an annual average growth valued at B.D. 3.075 million at an average rate above 16 per cent per annum. As to this sector's share in GNP, it moved from roughly 5.54 per cent in 1973 to more than 7.07 per cent in 1977. Therefore, while this sector grew at an important rate during the period under consideration, its share has limitedly improved in global economic activity.

Finally, public administration and defense was also a sector which grew notably. Its share in GNP increased by more than two-folds in 1973, it valued B.D. 18.9 million compared to B.D. 44.9 million in 1977. Thus it grew at an average of B.D. 6.5 million, an exceptional rate of about 35.4 per cent per annum. As to the share of this sector in GDP it almost doubled from about 4.58 per cent in 1973 to 8.19 per cent in 1977. This is shown in the following tables No. 1 and 2.

Table 1: Gross National Product by Industrial Origin at
Constant 1977 Market Prices (1)
(In Millions of Bahrain Dinars)

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977^{1/}</u>
<u>Agriculture and Fishing</u>	<u>10.2</u>	<u>9.7</u>	<u>9.4</u>	<u>9.0</u>	<u>9.4</u>
Agriculture	7.8	7.3	7.3	7.0	7.1
Fishing	2.4	2.4	2.1	2.0	2.3
<u>Mining</u>	<u>209.0</u>	<u>221.5</u>	<u>155.3</u>	<u>191.4</u>	<u>194.1</u>
Oil	208.6	221.3	154.9	190.4	193.0
Other	0.4	0.2	0.4	1.0	1.1
<u>Manufacture</u>	<u>48.6</u>	<u>64.7</u>	<u>81.1</u>	<u>100.7</u>	<u>115.1</u>
Oil Refining	19.1	25.5	24.6	21.4	32.2
Aluminium	16.0	19.9	21.4	23.0	22.6
Flour Mill	0.3	0.3	0.4	0.6	0.4
Other	13.2	19.0	34.7	55.7	59.9
<u>Electricity and Water</u>	<u>4.5</u>	<u>4.6</u>	<u>2.9</u>	<u>3.9</u>	<u>3.7</u>
Electricity	4.4	4.5	2.8	3.8	3.6
Water	0.1	0.1	0.1	0.1	0.1
Construction	34.9	40.2	42.3	55.8	61.9
Transport, Storage and Communications	22.9	26.8	30.4	37.9	38.3
Trade and Services	56.7	68.7	80.7	103.6	106.7
Banking and Insurance	4.1	6.8	11.8	30.0	49.2
Real Estate	23.9	26.1	24.2	28.4	31.8
Public Administration and Defence	18.9	29.9	35.1	41.3	44.9
GDP at m.p.	433.7	499.0	473.2	602.0	655.3
Net Factor Income	-21.0	-29.0	-36.6	-59.3	-106.9
GNP at m.p.	412.7	470.0	436.6	542.7	548.4

Source: Mission Estimates

1/ Preliminary estimates

(1) World Bank: "Bahrain Current Economic Position and Prospects", World Bank, 28 June 1978, Report No. 2058 - BH. Annex, Table 2.2.

Table 2: Gross National Product by Industrial Origin
at Current Market Prices (2)
(In Millions of Bahrain Dinars)

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u> ^{1/}
<u>Agriculture and Fishing</u>	<u>3.9</u>	<u>5.0</u>	<u>5.5</u>	<u>6.8</u>	<u>9.4</u>
Agriculture	2.5	3.3	4.4	5.2	7.1
Fishing	1.4	1.7	1.1	1.6	2.3
<u>Mining</u>	<u>43.9</u>	<u>143.0</u>	<u>129.7</u>	<u>167.2</u>	<u>194.1</u>
Oil	43.7	142.8	129.7	166.2	193.0
Other	0.2	0.2	0.5	1.0	1.1
<u>Manufacturing</u>	<u>25.0</u>	<u>51.1</u>	<u>63.7</u>	<u>95.5</u>	<u>115.1</u>
Oil Refining	13.4	14.3	21.1	25.8	32.2
Aluminium	4.3	24.3	13.7	18.6	22.6
Flour Mill	0.4	0.2	0.2	0.2	0.4
Other	6.9	12.3	28.7	50.9	59.9
<u>Electricity and Water</u>	<u>2.9</u>	<u>2.9</u>	<u>2.0</u>	<u>3.8</u>	<u>3.7</u>
Electricity	2.7	2.7	1.9	3.7	3.6
Water	0.2	0.2	0.1	0.1	0.1
Construction	11.2	19.9	29.5	54.2	61.9
Transport, Storage and Communications	12.0	16.0	22.8	31.5	38.5
Trade and Services	26.9	40.4	53.3	82.3	106.7
Banking and Insurance	7.1	9.9	10.9	33.9	49.2
Real Estate	4.9	7.7	22.5	31.2	31.8
Public Administration and Defence	9.3	17.1	24.2	31.6	44.9
GDP at m.p.	147.1	313.0	364.1	538.0	655.3
Net Factor Income	-14.1	-21.6	-33.2	-54.1	-106.9
GNP at m.p.	133.0	291.4	330.9	483.9	548.4

Source: Mission Estimates

1/ Preliminary estimates

(2) Previous reference annex, table 2.1

5. RECENT DEVELOPMENTS IN INDUSTRIAL PATTERN AND IN ITS CONSECUTIVE EMPLOYEE SHARING (1973 - 1977)

The total number of persons employed in industry as well as their share in the various existent branches are functions of the industrial strategy and pattern implemented in Bahrain.

In fact, the development of extracting, first one- or two-sequenced oil and/or minerals processing industries, while materializing a given period in the strategy and pattern of industrialization, determines the pattern, extent and share of persons employed in the various branches. Thus the setting up of such first-processing and non-agricultural upstream industrial sequences ^{1/}, basically capital-intensive and export-oriented, does not allow substantial industrial employment. To the contrary, a development of downstream operations and an extension of the industrial lines of production to include the latter, essentially labour-intensive sequences, leads to a higher level of industrial employment, while reinforcing the labour share of manufacturing.

In the case of Bahrain, labour-sharing within the industry has reflected the latter's structural characteristics, while highlighting the specialization of the economy as a whole as well as its role in the international division of labour. Considering distribution of employees among the different branches of industry in Bahrain over the period 1973-1977, as shown in the following table, we can easily see that two first-processing

1/ The concept of first one- or two-sequenced processing industries applies to non-integrated industries which consist of one or two of the first, i.e. upstream processing of agricultural or non-agricultural raw materials, i.e. oil and/or gas as well as minerals. Thus we distinguish agricultural first-processing and non-agricultural first-processing industries. The last category is subdivided into oil and gas and into minerals. See in this respect: EL-ZAIM, Issam and ALSHAIKH-ALI, Abdel-Bari: "The Industrial Patterns of Islamic Countries and Possibilities for Industrial Cooperation", Vienna, 1978, UNIDO, ICIS.

non-agricultural industries ^{1/} and one oil-related infrastructural maintenance industry, mainly ship-repairing, have mobilized and concentrated the major part of industrial labour in Bahrain. First, oil-refining and allied undertakings, classified under chemical industry, which in fact is the first-processing oil industry, has been the main labour-intensive industry in the Emirate, though its personnel has stagnated and its weight dropped consequently in relative terms; it maintained its leading position in the industrial employment pattern. Second, first-processing non-agricultural industry, classified under Basic Metals Production and Working, but not fabrication, boosted its number of employees and, consequently, ranked second among the labour-employing industries in the country. Added together, the two non-agricultural first-processing industries, namely oil-refining, aluminium-refining and first-processing, employed some 5062 workers or 58.96 per cent of the total of 8585 workers employed in the industrial sector in 1973; but they employed 7227 workers, nearly 55.59 per cent of total industrial labour, in 1977. This means, that specialization of Bahrain's industry in the first-processing of oil and imported minerals has slightly declined over the period 1973-1977, but is largely predominant in terms of employment.

On the other hand, the number of employees in the sector of transport, mainly ship-repairing, increased strongly. In 1973, 1929 manual and clerical workers were employed in this branch, almost 22.46 per cent of the total industrial labour in that year, compared with 2380 persons or nearly 18.31 per cent in 1977. As a consequence, ship repairing and transport became the second-largest employer of Bahrain's industrial branches.

Furthermore, since the basic-metals-processing industry is fundamentally based on gas, and as ship repairing is basically an oil-related infrastructural maintenance industry, the two first-processing branches of oil and metals added to that of oil-related ship repairing are all either based on or related to hydrocarbons (crude oil and gas). Taken

^{1/} see previous reference

as a group, these three industries had employed 6990 workers or 31.12 per cent of the total industrial labour employed in Bahrain in 1973, compared to 9607 workers or 73.39 per cent of the total industrial labour employed in Bahrain in 1977. This illustrates an increase of 2617 in the number of workers employed in those three first-processing and infra-structural maintenance undertakings, against a decline of -7.53 per cent over the period considered here.

Almost all the other industrial establishments have realized only a limited increase of their employees; only the paper-and-derived-products industry (including printing) did not achieve any increase at all, according to the available data presented in the illustrative table No. 3.

In fact, only mechanical industries achieved a very striking rise - the highest of all the industries - in their number of employees between 1973 and 1977. These branches multiplied the number of their employees from 172 or 2.0 per cent of the total in 1973 to 1013 or 7.79 per cent of the total in 1977. Therefore, the share of this industrial branch in the total of employed workers has multiplied both in number and percentage.

Since mechanical industries are stimulated by any developments in ship repairing and in the downstream-, i.e. aluminium and hydrocarbons processing, industry, it could be justified to add this last branch to the first three already examined branches of first-processing and oil-related infrastructural maintenance. If this is the case, the number of workers employed in the four branches will be 7162, or 83.42 per cent of the total of workers employed in industry in 1973, and a total of 10020 persons employed, almost 31.17 per cent of the total of employees in the industrial sector in 1977. This corrects the trend as reflected in the three combined branches which preceded, but at the same time it highlights a small descent within the four main hydrocarbon-based or related industrial branches, from oil refining to metal processing, ship repairing and, relatedly but also strongly, to mechanical industries.

Table 31. INDUSTRIAL ESTABLISHMENTS BY TYPE OF ACTIVITY
AND PERSONS EMPLOYED 1/

INDUSTRY	No. of Establishments	No. of Employees	1973				1977					
			Establishments with Employee Numbers				No. of Establishments	No. of Employees	Establishments with Employee Numbers			
			10	11-50	51-200	+200			10	11-50	51-200	+200
1. Agricultural, Food & Beverage Industries	21	448	10	8	3	-	28	587	16	9	3	-
2. Wood and Derived Industries (including Joiners' Shops)	64	221	60	4	-	-	80	370	72	8	-	-
3. Paper and Derived Products (including printers)	6	194	1	4	1	-	10	194 ^{1/}	5	4	1	-
4. Chemical Industries (including oil refining)	9	4,056	3	3	2	1	10	4,085	5	3	1	1
5. Building Materials (excluding building contractors)	20	364	6	13	1	-	54	538	35	16	3	-
6. Glass Industries	2	15	2	-	-	-	4	46	1	3	-	-
7. Plastics Industries	2	41	1	1	-	-	4	67	1	3	-	-
8. Basic Metals (Production and working; not fabrication)	2	1,006	-	1	-	1	4	3,142	-	2	1	1
9. Mechanical Industries	29	172	23	6	-	-	59	1,013	36	21	1	1
10. Electrical Industries	4	136	1	2	1	-	40	483	31	7	2	-
11. Transport (including ship repairing)	3	1,928	-	-	-	3	20	2,380	4	11	1	4
12. Miscellaneous	1	4	1	-	-	-	7	94	2	5	-	-
Total	163	8,585	108	42	8	5	320	13,001	200	92	13	7

Source: 1973: Industrial Planning Study by ACTIM, August 1973
(Employee numbers adjusted in 5 companies where employee numbers seemed incompatible with turnover).
1977: Bahrain Official Industrial Directory - Ministry of Development and Industry
(Plus 50 small carpenters' shops).

1/ This appears low compared with the 1973 figure.

1/ "Bahrain. Current Economic Position and Prospects", World Bank, Washington, June 28, 1978, Report No. 2058-BH, Statistical Appendix, Table B.1

1. HISTORICAL BACKGROUND

As a result to the fatal decline in the pearl-diving industry and its world trade during the first years of the 1930s there were thousands of unemployed workers in Bahrain. ^{1/} It is worthy to mention that the British authorities, which directly controlled the country at that time, introduced several legal reforms on labour conditions and wages in the pearl-diving industry. These two combined factors made cheap labour force available to BAPCO, the Bahrain Petroleum Corporation, which was still searching for oil. Indeed, the reforms forced upon the pearl-diving industry by the British added to new and real opportunities for jobs in BAPCO's installations and offered the local labour force a potential basis for regular and relatively high wages. BAPCO found abundant and cheap labour available.

Hence, labourers were employed in construction, loading and de-loading, as well as caretaking. For jobs which required some skill, BAPCO took recourse to the import of skilled foreign labour. ^{2/} Consequently, Bahraini workers were concentrated in subaltern jobs, and foreigners in top and intermediate positions. According to Littlefield ^{3/}, the oil company, the major employer, preferred to entrust foreigners within top positions in jobs not requiring skilled work ...

1/ "The Administrative Report for the Years 1926 - 1937":
 "The number of workers in pearl-diving decreased gradually from 1900 workers in the year 1930 to 10,000 workers in the year 1935; the biggest decline took place between 1933 and 1935, and was estimated at more than 6,000 workers or 39 per cent of the total labour force in this profession."

See AL-RUMAIHY and also AL-UBEIDY IBRAHIM-KHALAF: "The National Movement in Bahrain 1914-1971"

2/ AL-RUMAIHY, Mohamed. Gh.: "Problems of Political and Social Change in Bahrain, 1920-1970", Kuwait 1976, Al-Wahdah, Editing and Distribution House, p. 131, in Arabic;
 SHAWADRAN, B.: "The Middle East and the Great Powers", New York, 1955.

3/ LITTLEFIELD, R.I.: "Bahrain as a Persian Gulf State with Reference to its relations to Great Britain and the Province of Al-Hasa", Beirut, 1964, a dissertation for Masters Degree, American University of Beirut, p. 73.

During the first ten years which followed the establishment of Bahrain Petroleum Co. (BAPCO), Bahraini workers were employed through local employment agents. ^{1/} However, following a strike by the company's employees in 1933, foreigners were increasingly employed, especially when accepting lower wages than Bahrainis. ^{2/} Indeed, the number of Bahraini workers directly employed by BAPCO declined between 1943 and 1952. While the total number of BAPCO staff increased during that period from 6703 to 3716 persons, the percentage of Bahrainis in this total fell from 76.5 per cent in 1943 to 63.9 per cent in 1952. ^{3/} According to BELLING and PORTER, around 40 per cent of the labour force in Bahrain were employed at BAPCO during the mid fifties.

In addition to a small population, employment was limited to Bahrain's enterprises existing at that time. This was due to the emirate's underdeveloped economy and its major dependence on the oil and services sectors. According to a census made in 1956 there were no more than 667 enterprises registered in Bahrain with the overwhelming majority, i.e. 641 enterprises, or 93 per cent of the total, being micro-enterprises, each employing not more than five persons. ^{4/}

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- 1/ AL-RUMAYHI, Mohamed, Gh.: "Problems of Political and Social Change in Bahrain, 1920-1970", Kuwait 1976, Al-Wahdah, Editing and Distribution House, p. 132, in Arabic.
 - 2/ NAKHLE, Bahrain, p. 77
 - 3/ BELLING, W.A.: "Recent Developments in Labour Relations in Bahrain", in: Middle East Journal, Vol. XIII, No. 2, spring 1959;
PORTER, R.S.: "The Third Population Census of Bahrain, 1959", Beirut, 1961;
SHAMADRAN, R.: "The Middle East and the Great Powers", New York, 1955.
 - 4/ PORTER, R.S.: "The Third Population Census of Bahrain, 1959", Beirut, 1961, p. 42

Furthermore, during the same period, the Emirate being under British rule, employment was concentrated in seven foreign enterprises. Apart from BAPCC, which is a joint subsidiary of two US multinational corporations, but largely registered in Canada, there were six other major employers in the Emirate, which were British. These were the seven major employers:

1. ACVE Company for building and construction
2. BAPCC for the oil sector
3. Grey Mackenzie for sea transportation
4. The East African Near Eastern Corporation (EANE),
dealing with consumer goods
5. The Cable and Wire Corporation (CWA),
6. The British Overseas Airways Corporation (BOAC),
7. The British Military Base in Al-Muharrag and Al-Gafeir.

Many Bahraini workers who had emigrated to Saudi Arabia to work in its new and developing oil industry were expelled from that country following the strikes in its oil industry in 1953. When those workers returned to Bahrain, the unemployment problem became very serious in the emirate of Bahrain and, consequently, a special labour board was established by the authorities to supervise the labour market and the industrial relations. The number of unemployed was increasing in the mid fifties, and the opening of the Emirate to immigrants made things more difficult. Under these conditions the labour board was only partly successful in finding jobs for the unemployed. This is shown in the following table No. 1:

Table No. 1

Unemployed registered at the Labour Board

	Bahraini		Foreigners	
	Registered Unemployed	Employed	Registered Unemployed	Employed
1955*	2536	536	no employment authorized	
1956**	1223	1139	" "	" "
1957	2543	1043	328	241
1958	1366	1247	393	421
1959	1122	977	639	321

* AL-RUMAYHY, p. 156

** LITTLEFIELD, p. 77

1. KHALID, Abdallah: "On the Conditions of the Establishment of the first Trade Union in the Gulf (Bahraini Federation of Labour)", in: Al-Tariq (monthly), No. 6, Beirut, December 1979.

2 . EDUCATION

Regular education in Bahrain started in 1919 with the opening of the first primary school for boys. In 1928 the first primary school for girls was opened, and in that same year a group of Bahraini students was sent to the American University in Beirut. A year later education was put under direct Government control. In 1936 the first secondary school for boys was also opened. Religious teaching began in 1943 and was for boys only. In 1951 the first secondary school for girls was opened. Previously, the education system was made up of only two stages, namely primary and secondary, but in 1961 the intermediate stage was introduced. The male and female teacher training colleges were opened in 1966 and 1967, respectively. Available data^{1/} indicate that the number of students in both state and private schools is increasing, except for a slight decline in 1976/77. The teaching staff in these schools was also increasing annually, except during 1976/77. Additional data on state and private schools, including the nationality of the teaching staff, are presented here.

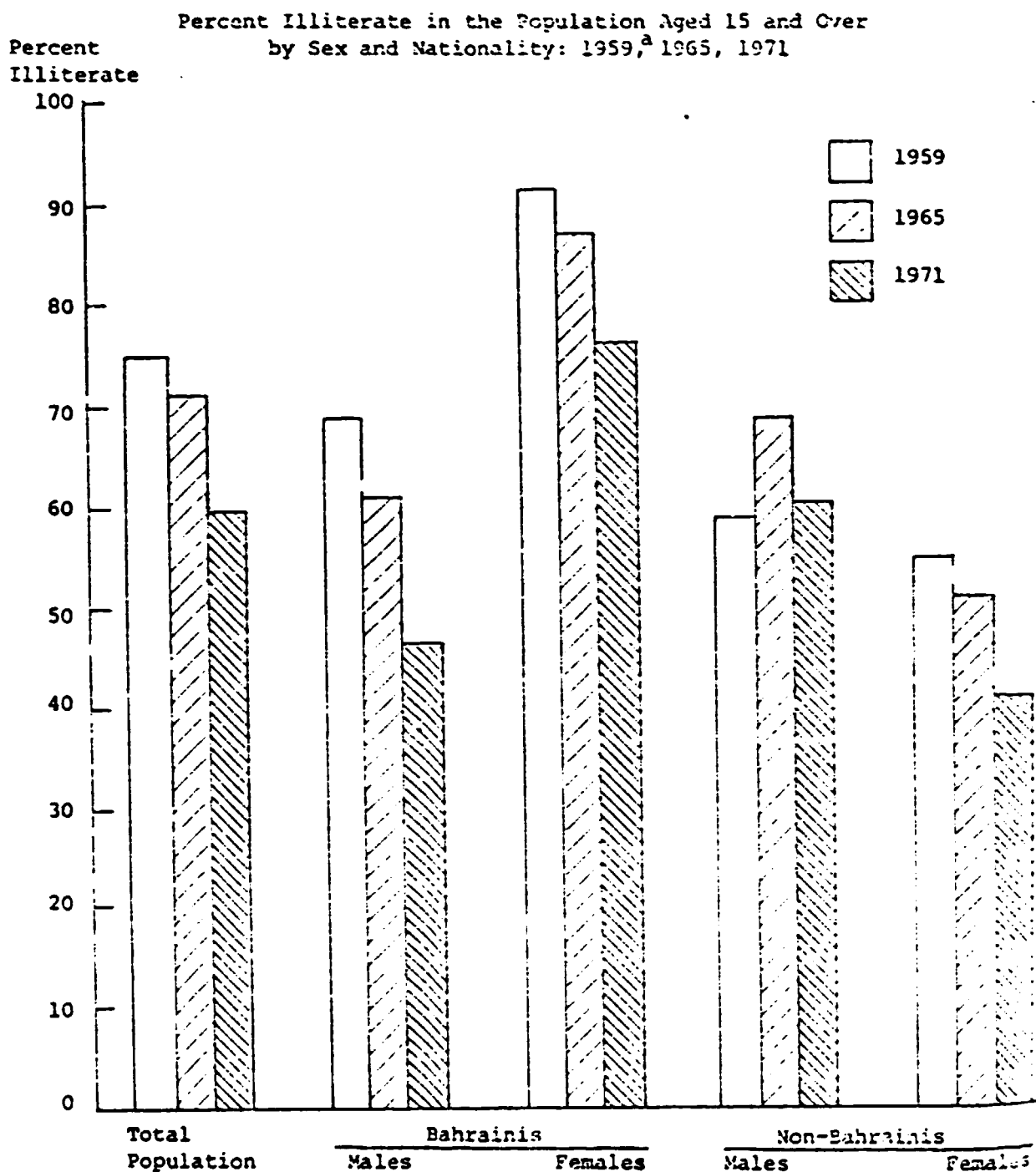
1/ State of Bahrain, Ministry of State for Cabinet Affairs, "Statistical Abstract 1977", Bahrain, October 1978, Directorate of Statistics, Section 4, Education Statistics, p. 57.

Literacy, Educational Attainment, and School Enrolment

Data are available with which to describe the literacy, educational attainment, and school enrolment of Bahrain's population. Literacy was defined as the ability to both read and write a simple sentence. The smaller increase in literacy between 1959 and 1965 than between 1965 and 1971 may be due to the more stringent definition in 1965. Educational attainment refers to the highest level of formal schooling completed by the adult population (age 20 and older). School enrolment is measured by the number of persons who are enrolled in school at each educational level.

- 2.1. Literacy. Increasing literacy has been associated with increasing industrialization, increased productivity, higher incomes, and improved living conditions. The manpower needs of rapidly developing societies have been met by increased educational opportunities. Nakhleh (1976) has also pointed out that the ability to read and write constitutes a minimum requirement for participation in all aspects of an increasingly complex society. Increasing literacy has accompanied Bahrain's development. The percentage of the population aged 15 and older that is illiterate dropped from 75 per cent in 1959 to 60 per cent in 1971. As shown in Figure 1, all sex and nationality groups have participated in this decline, with the exception of non-Bahraini males between 1959 and 1965. Patterns by age also provide insight into historical trends in illiteracy. Illiteracy in the older population reflects the limited educational opportunities available more than 40 years ago, while literacy has increased in the younger population, which can take advantage of recent educational expansion. Pronounced declines in illiteracy among young adults are illustrated in Figure 2. These declines have accelerated during the last 30 - 40 years for Bahraini males, and during the last 15-20 years for Bahraini females. The literate population increased 50 per cent between 1950 and 1959, 38 per cent between 1959 and 1965, and another 67 per cent between 1965 and 1971. Although progress has been made, and rates of illiteracy in Bahrain are lower than in other Arab states around 1970, illiteracy rates in Bahrain have exceeded world rates since 1950 (Population Reference Bureau, 1975).

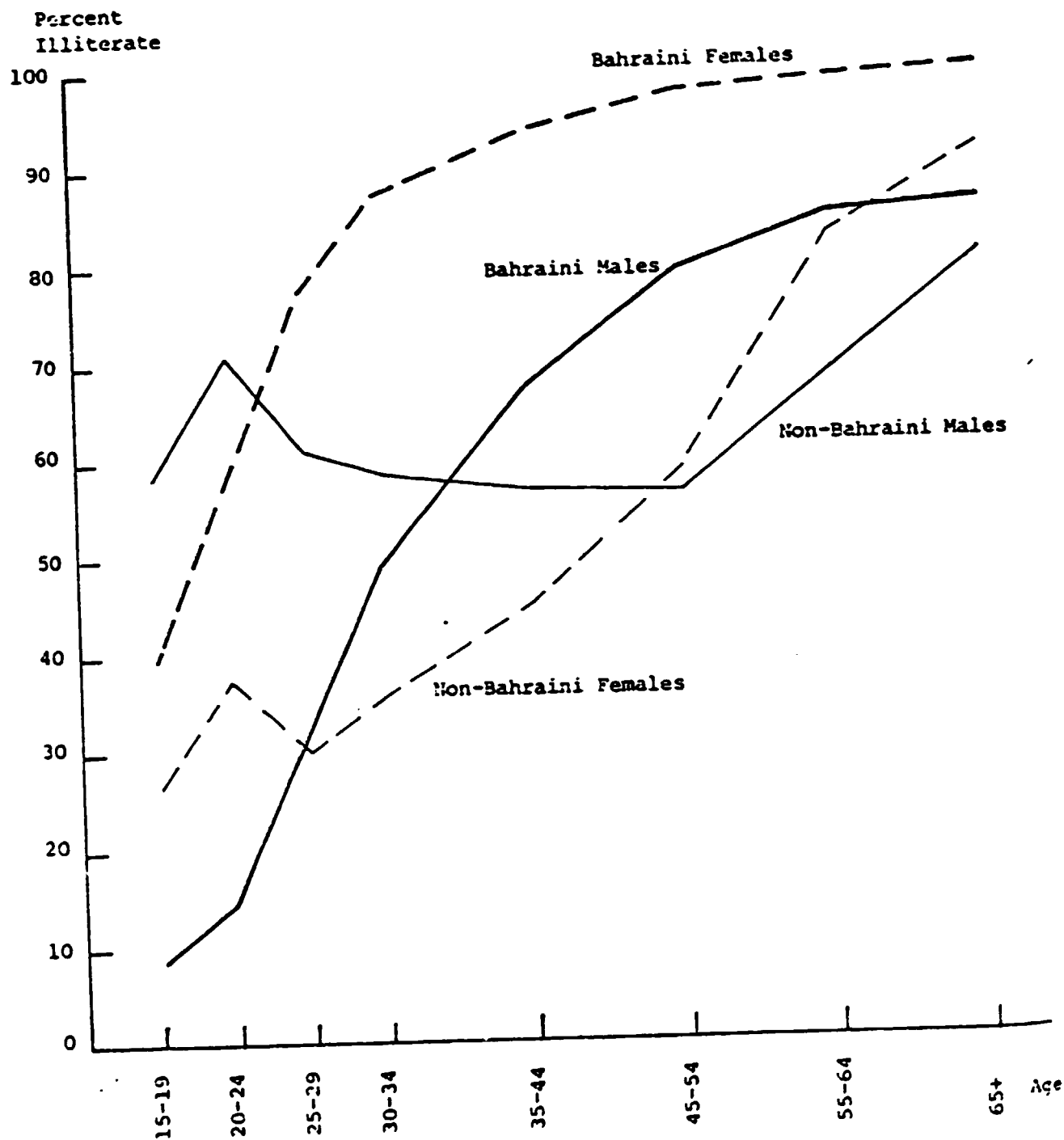
Figure 1



^aFor the population over 15 in 1959.

Source: Bahrain, Population Census 1959, pp. 10-11; Bahrain, Finance Department, Fourth Census of Population: 1965, Tables 35 and 36; Bahrain, Ministry of Finance and National Economy, Statistical Bureau, Statistics of the Population Census: 1971, Tables 5 and 16.

Figure 2
Percent Illiterate by Age, Sex, and Nationality: 1971



Source: Bahrain, Ministry of Finance and National Economy, Statistical Bureau, Statistics of the Population Census: 1971, Tables 5 and 16.

Improvements in literacy among Bahrainis in the population reflect the expansion of the educational system during the 20th century. However, more than one half of Bahrainis were illiterate in 1971. Although the literate population grew 184 per cent between 1959 and 1971, from 12,594 to 35,779, the illiterate population grew 11 per cent. All of the increase in the illiterate population was due to the increase of illiterate women, from 28,710 to 34,500. Since the illiterate female population has increased while the illiterate male population has declined, women constitute a growing proportion of the total Bahraini illiterate population, from 50 per cent in 1959 to 62 per cent in 1971. It should be noted that by 1971 the female population was less literate than was the male population in 1959.

Changes in literacy among non-Bahrainis reflect changes in the composition of migrants by nationality and occupation. If the demand for skilled workers is rather stable in Bahrain, then major changes in migration will involve unskilled workers. In times of net immigration the illiteracy rate may rise, with the influx of unskilled workers. In times of emigration the rate may fall, as the same workers seek employment elsewhere. In general, illiteracy among non-Bahrainis has declined, as it has among Bahrainis. Only non-Bahraini males experienced an increase in the illiteracy rate between 1959 and 1965, a period of immigration to Bahrain. Patterns of illiteracy by age illustrate the combined effects of age and educational opportunities available in the past, and changes in the occupational composition of migrants (Figure 2). Older non-Bahrainis had few educational opportunities either in the country of origin or in Bahrain. While total illiteracy rates have fallen over time, the population aged 20-24 shows a decided increase in the rate of illiteracy. Even in times of emigration, such as during 1965-1971, young adults in their 20s and 30s have moved to Bahrain. They may have led the major influx of unskilled workers to Bahrain that has occurred since 1971. The lower illiteracy rates among non-Bahrainis in their 20s and 40s may reflect the higher skill levels of older migrants or current residents in Bahrain. Non-Bahrainis 15-19 years of age are more likely to be attending school in Bahrain than are non-Bahrainis in their

20s, and thus have lower rates of illiteracy.

Since 1959 non-Bahraini females have been the most literate group in Bahrain. Although older non-Bahraini women are less literate than older non-Bahraini men, less than 40 per cent of younger foreign women are illiterate, compared with nearly 60 per cent of foreign men. As Fenelon (1969) noted in analyzing the 1965 census data, unskilled workers tend to come to Bahrain on their own, leaving their families at home. Those women who do come to Bahrain have specialized skills themselves or they accompany skilled workers.

2.2. Educational Attainment. The educational tradition in Bahrain is over fifty years old. In 1919 the first primary school for boys was opened. In the course of the following decade the first primary school for girls was established. Secondary education began in 1939 for boys and in 1951 for girls. The intermediate level schools, between the primary and secondary levels, were instituted in 1961. Increasing proportions of the population have been taking advantage of these educational opportunities, as indicated by the educational attainment of the population of 20 and older. (Unless a specific age category is mentioned, the following discussion refers to the population of 20 years of age and older.) The population that had completed intermediate or higher-level education more than doubled between 1965 and 1971. The per cent of the population completing more than primary education increased from 10.2 per cent in 1965 to 17.5 per cent in 1971, as shown in Table 2. Younger age categories have been able to take advantage of more educational opportunities than older age groups. While only 3 per cent of the population aged 55-64 in 1971 had more than a primary education, 38 per cent of those aged 20-24 had this education.

Bahraini females remain the least educated category, although they experienced the greatest increase in educational attainment between 1965 and 1971. The number of women who had completed more than a primary education increased more than six times. Although schools for girls were not available until years after comparable schools for

Table 2

Percent of the Population in Ages 20 and Older
Who Have More than a Primary Education by Sex and
Nationality: 1965^a and 1971

Nationality	Total	Males	Females
1965			
Total	10.2	12.6	6.9
Bahraini	4.7	8.2	1.0
Non-Bahraini	23.9	19.6	38.3
1971			
Total	17.5	21.8	11.6
Bahraini	13.4	20.8	5.3
Non-Bahraini	28.7	23.6	45.0

^a Ages 21 and older in 1965:

Sources: Bahrain, Finance Department, Fourth Census of Population: 1965, Tables 37-45; Bahrain, Ministry of Finance and National Economy, Statistical Bureau, Statistics of the Population Census: 1971, Tables 16-18.

boys had been started, it is evident that cultural restrictions on women have prevented them from taking advantage of available schools and programmes. Only recently have women gone to school beyond the primary level. 25 per cent of women aged 20-24 in 1971, compared with only 5 per cent of women aged 25-34, have more than a primary education. Bahraini men are far ahead of their female counterparts, since 60 per cent of men aged 20-24 have more than a primary education.

The non-Bahraini population with more than a primary education increased by about a third between 1965 and 1971. Non-Bahraini women, 45 per cent of whom have education at the intermediate level or higher, have the highest educational attainment of all four sex and nationality groups. The low fertility of non-Bahraini women is probably related to this high level of educational attainment. Although a large proportion of non-Bahrainis is unskilled, another group in the foreign population is filling a need for more highly skilled workers in Bahrain's economy. While non-Bahrainis constituted 27 per cent of the population aged 20 and over in 1971, they constituted 67 per cent of those with educational attainment beyond the secondary level.

2.3. School Enrolment. Future patterns of literacy and educational attainment will be determined by the progress of children who are currently attending school. Table 3 presents enrolment rates, the percentage of the population that is attending school by age, sex and nationality. The 1965 and 1971 censuses provide the basic information. Enrolment rates in 1976 are estimated for Bahrainis only by relating school enrolment in the 1975-1976 academic year (Bahrain, Ministry of Education, 1976) to the estimated population in 1976. Current enrolment rates imply a substantial improvement in both literacy and educational attainment in the future (Table 3).

Over 60 per cent of the Bahraini population in the age group of 5-19 is enrolled in school in 1976. The age category of 10-14 years has the highest enrolment rates. Since 1965, enrolment rates for boys in the age group of 5-9 have been increasing, while rates for boys

Table 3
 Enrolment Rates^a by Age, Sex, and Nationality: 1965, 1971
 and 1976 (Bahrainis Only), and Mean Annual Percent Change

Sex Age	Bahrainis				Non-Bahrainis		
	1965	1971	1976	Mean Annual % Change 1965-1976	1965	1971	Mean Annual % Change 1965-1971
Total							
5-9	48.4	47.8	58.4	1.8	60.4	62.5	0.6
10-14	74.8	79.8	84.0	1.1	78.3	82.7	0.9
15-19	48.3	51.1	49.7	0.3	25.5	26.5	0.6
Males							
5-9	56.0	52.4	63.6	1.2	61.4	64.3	0.8
10-14	92.1	91.5	92.0	-0.0	79.1	81.8	0.6
15-19	68.2	60.6	54.9	-1.7	22.0	20.9	-0.8
Females							
5-9	40.9	43.2	53.1	2.7	59.2	60.5	0.4
10-14	55.9	67.8	75.8	3.2	77.3	83.8	1.4
15-19	28.1	41.6	44.4	5.2	35.2	38.8	1.7

^a
 Percent of the population enrolled in school.

Sources: Bahrain, Finance Department, Fourth Census of Population: 1965, Tables 33-34; Bahrain, Ministry of Finance and National Economy, Statistical Bureau, Statistics of the Population Census: 1971, Tables 5, 17; Bahrain, Ministry of Education, Planning Directorate, Educational Statistics for the Academic Year 1975-1976, pp. 48-129; Table C.3.

of the age 10-14 have stabilized at over 90 per cent. Enrolment rates at the age group 15-19 show some decline. Rates for Bahraini girls have increased in all age groups, but most noticeably among those 15-19 years of age. The increased enrolment in the age group of 15-19 may explain the delay in marriage noted earlier in this chapter. Girls now constitute 45 per cent of the school population in all three age groups. Since 1971, Bahraini girls have constituted 43 per cent of primary school enrolment, 45 per cent of students at the intermediate level, 54 per cent of general secondary students, and 33 per cent of commercial secondary enrolment. In addition, Bahraini girls make particularly good students: they are less likely to repeat a grade than are boys, and they are more likely to pass exams at each level.

Non-Bahraini girls also show increasing enrolment rates at older age groups since 1965, although their rates are similar to those for non-Bahraini boys. Such similar rates are surprising, since women have substantially higher educational attainment than men at older age groups. (Table 2). The school enrolment rate for non-Bahraini males aged 15-19 is particularly low, indicating employment at relatively young ages.

To summarize, information on school enrolment, educational attainment, and literacy, show a consistent improvement in the educational status of the population, although the rural population, women, and some age groups have yet to participate fully in the educational system. Such progress is both a determinant and consequence of economic development in Bahrain. Higher levels of educational attainment among women have already led to delayed marriage and lower fertility, particularly among non-Bahrainis. Although the quality of education cannot be assessed with available data from censuses and surveys, the demand for higher education is growing, the labour force participation of women is increasing, and the general educational attainment of the labour force is increasing.

2.4. Post-Secondary Education

Post-secondary education in Bahrain^{1/} is confined to two teacher training colleges, and to the Gulf Technical College, an institution established in 1963 through the cooperation of Bahrain, Abu Dhabi, and the British Ministry of Overseas Development (BMOD). The College is presently financed by Bahrain, Abu Dhabi, and Qatar. BMOD provides only the cost of a few British staff, and this contribution is to end in 1979. The College is open for all the Gulf countries. The courses cover a wide spectrum, ranging from three years for commercial and business administration to four years for technical and engineering courses. In December 1977 UNESCO recommended upgrading the College's curricula and improving its financial planning.

As expansion of economic activities in Bahrain and neighbouring countries slows down, graduates of the general secondary schools may find it more difficult to find employment in the future. Consequently, authorities are considering ways of limiting entry to general secondary schools, and diverting more students to technical secondary schools. This shift in educational policy also stems from the Government's desire to reduce the need for foreign labour.

To identify the needed skills and to suggest the means of training, a High Council for Vocational Training was established in December 1975. The Council is chaired by the Minister of Labour and Social Affairs. Responsibilities of the Council include establishing vocational training policy.

Current development efforts to introduce modern industries to Bahrain and make it a financial and business center will be strengthened by the rise in literacy. Therefore, the Government may wish to consider introducing compulsory primary education.

In 1972/73 the Government began a serious effort to eradicate illiteracy among the adult population. For that purpose, it established 14 literacy centers scattered throughout Bahrain. Enrolment in these centers was 5,000 in 1976/77.

^{1/} World Bank: "Bahrain Current Economic Position and Prospects", Washington, June 28, 1978, World Bank, Report No. 2058-BH, pp. 9-11

Along with the need of a literate population, the Government has been making considerable efforts to increase the number of skilled Bahrainis. For this purpose, a number of vocational centers have been established. Facilities of the Gulf Technical College and the other technical schools have been made available for the night classes held by these centers. As a result, there are now training centers for the Dry Dock (ASRY), the Electricity Department, Cable and Wireless, BIPCC, ALBA, the Gulf Air, and hotel and catering.

Table 4: Graduates at Gulf Technical College
(1972/73 - 1976/77)

Year	Bahraini		Omani		Total		Grand Total
	Male	Female	Male	Female	Male	Female	
1972/73	8	10	2	3	10	13	23
1973/74	19	16	4	-	23	16	39
1974/75	48	21	8	2	56	23	79
1975/76	33	24	7	5	40	29	69
1976/77	22	24	-	3	22	27	49

Source: Ministry of Education.

Table 5: Bahraini Students in Higher Education Abroad
by Country and Specialization, 1976/77

Specialization	Egypt	Kuwait	Iraq	Saudi Arabia							Total
				UK	India	USSR	Qatar	Lebanon	Others		
Medicine	126	-	-	-	-	-	22	-	5	43	196
Pharmacy	11	-	5	1	-	-	-	-	-	-	17
Engineering	57	10	32	48	1	-	18	-	28	20	214
Sciences	66	86	41	42	-	-	5	16	14	11	291
Mathematics	35	2	8	4	-	-	-	17	4	-	70
Commercial	132	146	4	18	-	-	-	-	1	6	307
Administration and Economics	7	13	42	3	-	-	-	-	-	-	65
Economic and Po- litical Science	19	10	6	-	-	-	1	-	1	3	40
Law	26	34	4	-	-	-	-	-	-	1	65
Law and Sharia	8	1	-	7	-	-	14	-	-	2	32
Fine Arts	33	-	4	-	-	-	1	-	-	2	40
Arabic Language	66	37	2	10	-	-	-	12	-	-	127
English	40	33	2	18	2	2	-	14	3	5	121
History	11	30	2	5	-	2	7	1	-	4	62
Geography	14	46	1	15	-	-	-	5	-	4	84
Philosophy	-	35	-	-	-	-	-	-	-	9	44
Psychology and Sociology	35	85	3	17	-	-	-	1	2	3	146
Arts	60	65	55	17	-	-	1	2	5	-	205
Agriculture	4	-	6	-	-	-	3	-	-	-	13
Physical Education	14	-	4	-	-	-	-	-	-	-	18
Music and Theatre	27	-	-	-	-	-	-	-	-	-	27
Graduate Course	10	-	-	1	3	2	2	-	-	7	25
Others	41	-	13	6	159	90	3	16	1	16	345
Total	842	636	248	212	165	96	77	84	64	136	2,544

3. CHANGES IN BAPCO'S EMPLOYMENT AND RECRUITMENT POLICY 1970 - 1977

At Bahrain Petroleum Company (BAPCO) the number of staff members almost quadrupled between 1970 and 1977, jumping from 1000 to 3878 employees. (See Table 6).^{1/}

Different national categories are recognizable among BAPCO's employees, and their shares have changed during the years 1970-1977.

1. Bahraini nationals were and still are by far the major category of BAPCO employees, their number increased from 891 in 1970 to 3205 in 1977; their relative share, however, decreased during that period from 89.1 per cent to less than 82.6 per cent.

2. British expatriates multiplied by more than five from 57 in 1970 to 297 in 1977.

3. Commonwealth citizens multiplied by more than nine, with their number jumping from 26 to 244 during the period considered.

4. Employees under the category Others multiplied by slightly more than seven: 11 in 1970 and 78 in 1977.

5. Americans also multiplied by almost twelve, with their number jumping from 3 in 1970 to 35 in 1977.

6. Gulf Arabs increased only by slightly a half, amounting to 12 in the first year of the period considered and to 19 in 1977.

On the basis of those pattern changes we can assess a recruitment policy giving

- first priority to Bahrainis with a certain tendency to reduce their share in total staff;
- second priority to increase the two categories of British and Commonwealth employees, with their combined number

^{1/} State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: "Statistical Abstract 1977", Bahrain, October 1978, Table 58, p. 92.

jumping from 33 or 8.3 per cent of the staff total in 1970 to 541 or 13.95 per cent of the staff total in 1977;

- third priority to increase the numbers and percentage shares of American nationals and those of the category Others, though still being limited in number and relative share;
- a significant fourth priority to stabilize at a very low level the number of Gulf Arabs.

While the recruitment policy of local nationals and U.K. as well as U.S. nationals respond to various economic, political and strategic considerations for the company, that of Commonwealth nationals to cost and control considerations, and that of Gulf Arabs could be explained by political and strategic considerations for the company as well as by the economic conditions of the Gulf neighbouring states.

Insofar as the Bahraini Government achieves the take-over of BAPCO, the recruitment policy and the employees categories and patterns may undergo progressive changes.

Table No. 6

RIPCO Employees by Nationality (1970 - 1977)

Nationality	Year							
	1970	1971	1972	1973	1974	1975	1976	1977
Bahrain	891	3461	3330	3313	3385	3335	3205	3205
British	57	224	210	209	222	220	235	297
Gulf Arabs	12	48	44	35	30	24	20	19
Commonwealth	26	100	88	89	15	116	138	244
American	3	11	12	21	36	39	34	35
Others	11	39	47	41	113	30	35	78
Total	1000	3883	3731	3708	3801	3764	3667	3873

Source: State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: "Statistical Abstract 1977", Bahrain, October 1978, Table 58, p. 92.

Table 7 : BAPCO Employees by Nationality, 1970-77

Nationality	1970		1971		1972		1973		1974		1975		1976		1977	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Bahrainis	3,900	89.1	3,460	89.1	3,330	89.2	3,313	89.3	3,385	89.0	3,335	88.6	3,205	87.4	3,300	81.6
Gulf Arabs	53	1.2	47	1.2	44	1.2	36	0.9	30	0.8	24	0.6	20	0.5		
British	249	5.7	225	5.8	210	5.6	209	5.6	222	5.8	220	5.8	235	6.4	290	7.3
Commonwealth	114	2.6	101	2.6	88	2.3	89	2.4	15	0.3	116	3.1	138	3.7	300	7.6
American	13	0.3	12	0.3	12	0.3	21	0.5	36	0.9	39	1.0	34	0.9	58	1.5
Other Nationalities	48	1.1	38	1.0	47	1.2	41	1.1	113	2.9	30	0.8	35	0.9		
Total	4,377	100.0	3,883	100.0	3,731	100.0	3,708	100.0	3,801	100.0	3,764	100.0	3,667	100.0	3,943	100.0

Source: Bahrain Petroleum Company, Limited, Bahrain.

4. CHANGES IN INDUSTRIAL COMPOSITION 1959-1971 ^{1/}

Changes in the occupational structure of the labour force reflect changes in the manpower requirements of industries in Bahrain. As shown in Table 3, four industries expanded more rapidly than the employed population in 1959-1965: transport, storage, and communications; construction; wholesale and retail trade, restaurants and hotels; and financing, insurance, real estate and business services. The group of rapidly growing industries in 1959-65 were joined by mining and manufacturing in 1965-71, but wholesale and retail trade and restaurants and hotels experienced a relative decline in 1965-71. Agriculture and fishing, once so important to Bahrain's economy, declined relatively in 1959-1965 and absolutely in 1965-71. The labour force employed in community, social, and personal services declined absolutely in both periods. As a result of these changes, the industrial composition of the labour force was more diversified in 1971 than in 1959. Although community, social and personal services employed the largest proportion of workers in 1971 (31 per cent), construction; mining and manufacturing; transport, storage and communications; and wholesale and retail trade, restaurants and hotels each employed a substantial proportion of the labour force (13-18 per cent).

4.1. DISTRIBUTION OF MEN AND WOMEN

Table 16 presents per cent distributions by industry for men and women in 1971. It is evident that men are more evenly distributed throughout the industrial structure than women, who are highly concentrated in community, social, and personal services. Over half of the working women would have to shift to other industries of employment to have the same industrial distribution as men. Within the service

^{1/} State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: "The Population of Bahrain. Trends and Prospects.", Bahrain, January 1979

Table 8
Employed Population by Major Industry Group: 1959 to 1971

Industry	Number			Percent Distribution			Mean Annual Percent Change	
	1959	1965	1971	1959	1965	1971	1959-1965	1965-1971
Total	46,955	53,274	59,590	100.0	100.0	100.0	2.3	1.9
Agriculture and fishing	4,464	4,654	3,990	9.5	8.7	6.7	0.7	-2.3
Mining and manufacturing	10,405	7,518	8,464	22.2	13.9	14.2	-4.0	2.0
Gas and water	--	--	1,705	--	--	2.9	--	--
Construction	4,739	8,328	10,404	10.1	15.6	17.5	13.2	4.0
Wholesale and retail trade; restaurants and hotels	4,766	7,306	7,706	10.2	13.9	12.9	9.6	0.7
Transport, storage and communication	1,631	5,494	7,743	3.5	10.3	13.0	41.2	6.6
Financing, insurance, real estate, and business services	273	354	1,084	0.6	0.7	1.8	5.2	33.4
Community, social, and personal services	20,137	19,540	18,388	42.7	36.9	30.8	-0.5	-1.0
Activities not classified	540	--	106	1.2	--	0.2	--	--

Sources: Bahrain, Population Census 1959, pp. 19-21; Bahrain, Finance Department, Fourth Census of Population: 1965, Table 7; Bahrain, Ministry of Finance and National Economy, Statistical Bureau, Statistics of the Population Census: 1971, Table 10.

Table 9

Percent Distribution of the Employed Population by
Major Industry Group and Sex; Percent Non-Bahraini
in each Major Industry Group by Sex: 1971

Industry	Total		Non-Bahraini	
	Male, Percent	Female, Percent	Percent of Total Male	Percent of Total Female
Total	100.0	100.0	36.9	43.5
Agriculture and fishing	7.1	0.1	24.9	25.0
Mining and manu- facturing	14.9	2.7	33.5	48.3
Gas and water	3.0	0.1	13.1	75.0
Construction	18.4	1.2	45.7	80.0
Wholesale and re- tail trade; restaurants and hotels	13.4	4.5	36.8	51.7
Transport, storage and communication	13.5	3.7	34.2	58.8
Financing, insur- ance, real estate, and business services	1.8	2.3	31.5	34.7
Community, social and personal services	27.7	85.3	40.3	41.9
Activities not classified	0.2	0.1	39.8	100.0

Source: Bahrain, Ministry of Finance and National Economy, Statistics
Bureau, Statistics of the Population Census: 1971, Table 10.

category, women are overrepresented in the social services, and underrepresented in public, sanitary, international, recreational, and personal services. This concentration in the social services reflects the concentration of women in teaching and nursing occupations.

4.2. INDUSTRIES OF BAHRAINIS AND NON-BAHRAINIS

The percentage of non-Bahraini in each industrial category is presented in Table 9. Non-Bahraini males are overrepresented in only two industries: Construction and community, social and personal services. In all other industries the proportion of non-Bahrainis falls below their proportion of the total of employed males. Among women, however, non-Bahrainis are overrepresented in five industries: construction; gas and water; transport, storage and communications; wholesale and retail trade, restaurants and hotels; and mining and manufacturing. In the community, social and personal services, which employ the majority of women, non-Bahrainis are only slightly underrepresented. In general, Bahrainis and non-Bahrainis are working in the same broad industrial categories: only 11 per cent of the non-Bahrainis would have to change the branch of industry where they are employed in order to have the same industrial distribution as Bahrainis.

Within the broad categories identified in Table 9, however, non-Bahrainis are concentrated in specific industries. For example, non-Bahrainis are disproportionately employed in the personal, international, sanitary and recreational services. Non-Bahrainis constitute more than half of restaurant workers but less than a third of those employed in wholesale and retail trade. Within mining and manufacturing industries, non-Bahrainis are overrepresented in the manufacturing of food and beverages; textiles, wearing apparel and leather goods; paper and paper products, printing publishing; chemicals and plastic products; non-metallic mineral products; fabricated metal products, machinery, and equipment.

Summary. Following similar trends in other oil-producing city-states, Bahrain has invested in service and construction industries that require migrant labour. Unlike many other oil-producing city-states, however, Bahrain had also been characterized by industrial diversification (Halliday, 1977). While men and women were employed in quite different industries in 1971, Bahrainis and non-Bahrainis have similar distributions by broad industrial sectors. The industrial composition of the labour force will be changed in the future by development decisions, changes in female labour force participation, and in the educational and occupational composition of the labour force.

Table 10

Labour Permits Issued (1974)

Industry	Total	Non-Bahraini	Percentage Share	Bahraini	Percentage Share
Agriculture and Fishing	86	84	97,6		24
Mining and Manufacturing	1650	1105	67,0	545	33
Electricity, Gas and Water	323	209	64,7	114	35,3
Construction	887	671	75,6	216	24,6
Wholesale Retail Trade, Restaurants and Hotels	84	71	84,5	13	15,5
Transport, Storage and Communications	662	366	55,2	696	41,3
Financing, Insurance, Real Estate and Business Services	14	8	57,1	6	42,9
Community, Social and Personnel Services	2479	1800	72,6	679	27,4
Activities not Adequately Designed	3643	2138	59,9	1460	40,6
Total	9833	6502	66,1	3331	33,9

Source: Ministry of Labour and Social Affairs, Bahrain, "Statistical Abstract 1974, State of Bahrain", Ministry of Finance, Statistical Bureau, Bahrain, September 1975, Table 72.

4.3. Share in Labour Force

According to 1977 estimations the labour force in the different economic sectors added up to 63,315 workers of whom 19,343 were Bahrainis. As regards the sectoral share of labour, 92 per cent of the total working labour force were concentrated in three sectors, according to the following table No. 11.

Sector	Percentage share in total labour force
Services	57.9
Building and Construction	17.3
Industry	<u>16.3</u>
subtotal	92.0
Other sectors	<u>3.0</u>
total	100.0
	=====

Table No. 12 shows the labour force distribution among the different economic sectors. ^{1/}

^{1/} IDCAS: "A Country Report on the state of Bahrain", IDCAS, 1979, pp. 8+9, text in Arabic

Table No. 12

Sector	Size of the Labour Force		Percentage share of the sector
	partial	total	
<u>SERVICES</u>		36,666	57.9
1. Commerce and cooperatives	3,091	-	
2. Communications and storage	3,130	-	
3. Finance	1,138	-	
4. Social and private services	19,307	-	
<u>INDUSTRY</u>		10,673	16.3
1. Oil extraction	4,526		
2. Electricity, gas and water	1,790		
3. Manufacturing and others	4,362		
<u>BUILDING AND CONSTRUCTION</u>		10,924	17.3
<u>AGRICULTURE AND FISHING</u>		4,190	6.6
<u>OTHER SECTORS</u>		357	1.2
T O T A L		63,315	100
<hr/>			
Bahraini Labour Force		39,843	63
Non-Bahraini Labour Force		23,467	37

Bahraini nationals represent 63 per cent, a little less than two thirds of the Emirate's labour force. This labour pattern contrasts with the corresponding labour force structure in the neighbouring Gulf states (Kuwait, United Arab Emirates or Qatar), where immigrant labour is largely predominant in many sectors of the national economy. The predominance of Bahrainis within the Emirate's labour force is as much on the scale of the global economy as in each of its sectors. In the case of the mining and manufacturing industries, Bahraini labour is strongly predominant, compared to immigrant labour, and this shows the capabilities and good prospects for the Emirate's economy.

Women are very marginally employed in the Bahraini economy. In 1977 Bahraini women workers totalled 1941 or 3 per cent of the Bahraini labour force; non-Bahraini women workers totalled 1270 or 2 per cent of the total immigrant labour. Therefore, women - whether Bahraini or not - are very limitedly employed in various economic undertakings, with the exception of services, which includes teaching, education and nursing, where Bahrainis constitute 5 per cent of the total sectoral labour, but the overwhelming majority of Bahraini women workers. Similarly, immigrant women workers represent 1 per cent of the total labour force in the same sector, but also the overwhelming majority of immigrant women labour. On the other hand, women are almost absent in industry, agriculture and infrastructures. Their percentage shares in each of these sectors are minimal.

The sectoral share of both national and immigrant labour as well as male and female labour is shown in Table No. 13.

Table 13

LABOUR SHARE AMONG THE VARIOUS ECONOMIC SECTORS (1977 ESTIMATIONS) 1/

Sector	Total	Bahraini				Non - Bahraini			
		males		females		males		females	
		number	%age share	number	%age share	number	%age share	number	%age share
Services	36,666	20,825	57	1,843	5	12,618	34	1,480	4
Building and Construction	10,924	5,912	54	8	x	4,970	45	34	x
Mining and Manufacturing	8,888	5,848	66	47	x	2,949	33	44	x
Agriculture and Fishing	4,190	3,142	74	3	x	1,044	25	1	x
Electricity, Gas and Water	10,124	5,912	54	3	x	4,970	45	34	x
Other undertakings	857	627	73	39	5	183	21	8	1
Total	63,315	37,907	60	1,941	3	21,997	35	1,470	2

1/ MINISTRY OF DEVELOPMENT OF BAHRAIN, Al-Masama, 1977, an unpublished report, cited in IDCAS: "A Country Report on the State of Bahrain", p. 11

Electricity, Gas and Water has the highest percentage of Bahraini male labour (56 %), followed by Agriculture and Fishing (71 %), and Other Non-Defined Undertakings (73 %). The Mining and Manufacturing sector has a percentage of 66 of Bahraini labour. The lowest percentage, 54 %, of male Bahraini workers is in the sector Building and Construction, followed by Services with 57 %. Male immigrant workers have the highest share in Services (34 %) and in Mining and Manufacturing (33 %), the lowest in Electricity, Gas and Water (13 %).

As regards female workers, their share represents the same pattern. In the Services sectors 5 per cent of Bahraini workers are women, compared with 4 per cent of non-Bahraini women workers.

According to the 1971 census, immigrant labour effectively employed in the different sectors amounted to 22,351: it increased to 23,467 workers according to the estimations in 1977, reflecting an increase of 4.9 per cent. Drawing a parallel, national labour force increased from 37,950 workers in 1971 to 39,343 according to 1977 estimations, reflecting an increase of 5 per cent.

Consequently, the ratio of national versus foreign labour has not been altered during the period 1971 - 1977.

Expatriates are required to produce a health certificate on entry certifying that they are physically qualified for the job for which they have been engaged. The charge for this is BD 3 and has to be renewed annually. Both Bahraini and expatriate workers are required to obtain a work permit and register at the Ministry of Labour and Social Affairs. The expatriates' work permit may be cancelled if Bahraini workers become available to take over their jobs or if they become unemployed for a month or more. The expatriate worker may also lose his permit if he undertakes work for another employer within the two-year period for which he is usually contractually engaged and brought into Bahrain.

The minimum age for employment is 14 years, but special permission is required to engage juveniles under 16, and they are excluded from hazardous occupations. The work week is 45 hours (36 during Ramadan), except during special periods such as stock taking etc. when it may not exceed 60. Time and one quarter (time and a half for night work, is paid for overtime work. In case of injury on the job (not the employee's fault) the employer pays the cost of treatment and full wages during absence from work because of such disability. Employers of more than 50 workers are expected to provide facilities for the basic health care of their employees.

Establishments are required to report to the Ministry of Labour and Social Affairs on such matters as the number of workers employed, vacancies, wages, the age and sex composition of the labour force. If enforced, this should provide the Ministry with much more useful data than is currently available. Also, it is hoped that the present visit by a team from the University of Southern California to study the data situation in Bahrain will improve the labour force data.

The Labour Law has quite elaborate provisions for mediation, conciliation and arbitration of labour disputes, but they are not often used. If the workers present grievances against their employer, the matter is handled informally by the Ministry. The employer may be requested to raise his wages to the level of similar plants. ^{1/}

^{1/} WORLD BANK: "Bahrain: Current Economic Position and Prospects", Washington, June 28, 1978, Report No. 2058-BH, p. 13.

5. The Main Labour Policy Orientations

Due to the rapid development and diversification of industry in Bahrain in recent years, the need for effectively meeting the Nation's requirements in trained manpower has been of much concern to the Government.

In 1976 the total workforce numbered approximately 80,000, about one-half of whom were Bahraini citizens, the remainder being expatriate workers.

To help meet the demand for trained manpower, it was estimated in 1976 that during the next 10 years, approximately 34,000 Bahraini school-leavers would enter the workforce, and that permanent job opportunities would be available in three main areas as follows^{1/}

1. Replacement of Bahraini workers retiring, etc.	8,000
2. New jobs being created in the economy	10,000
3. Replacement of non-Bahraini workers	16,000
	<hr/>
Total:	34,000
	<hr/>

Of the three and a half thousand school-leavers who could be entering the workforce on an average each year, approximately one-third would have successfully completed secondary school, and many training and higher educational facilities for persons of that level of education are already available. However, in the past a number have followed courses which were not as appropriate to individual and national needs as they might have been, resulting in individual disappointment and loss to the nation as a whole. With regards to the remainder, it is estimated that over two thousand will enter the workforce annually, without having completed secondary school, and very few training opportunities are available for such persons at the present time. Furthermore, in the past, a very high number of school-leavers at that educational level have entered the workforce untrained and with little prospect of ever being able to follow an organised training programme.

Consequently, apart from the need for training opportunities for future school-leavers, there is also the major task of up-grading the skills of existing workers wherever this is appropriate and practicable. Naturally there are, and will be for the foreseeable future, jobs that require very little or virtually no training at all. Nevertheless, large numbers of existing workers do require training in order to improve their skills, promotion prospects and overall development.

^{1/} Reference: State of Bahrain, The High Council for Vocational Training, Information Booklet, July 1976, Pages 1 and 2.

It became increasingly apparent that if these problems were to be overcome and individual and national training needs effectively met, then training would have to be co-ordinated at a national level and the necessary training policy and plans developed. This would be the first step towards ensuring as far as possible that all Bahraini citizens are given the opportunity of realising their full potential which in the final analysis will be essential for the nation's overall continued economic and social advancement^{1/}.

5.1. The Labour Law

In 1976 the Government passed a comprehensive labour law regulating the conditions of work for local and foreign employees. This law concerns such matters as work permits for Bahraini and expatriate workers, and priority of employment first for Bahrainis and secondly for other Arab nationals. It also stipulates vocational rehabilitation for injured employees, vocational training and protective provisions relating to juvenile and female employees in hazardous employment and hours of labour. It applies to all private and para-statal employees. Indemnity is provided in the case of premature termination of employment without fault by the employee. However, the latter appears to involve rather lengthy administrative and possibly legal procedures. The Minister of Labour and Social Affairs is empowered to stipulate a minimum wage, though market wages in Bahrain are now about BD 2-3 per day for unskilled labour, and thus the minimum wage (BD 1.2 set in March 1974) is not meaningful in the present state of the labour market. No form of collective bargaining is mentioned in the Labour Law, though it refers to collective action by employees in labour disputes.

The provisions of the law which apply to Bahraini workers also generally apply to expatriates, with the exception that the latter cannot be employed for a task for which qualified Bahrainis are available, and their de-facto pension rights are limited by the frequently short period of their employment. Of course, the importance of priority of employment for Bahrainis has been reduced by the tight labour market that heretofore has prevailed.

1/ WORLD BANK: "Bahrain: Current Economic Position and Prospects", Washington, June 28, 1978, Report No. 2058-BH, p. 14

5.2. Social Insurance Law

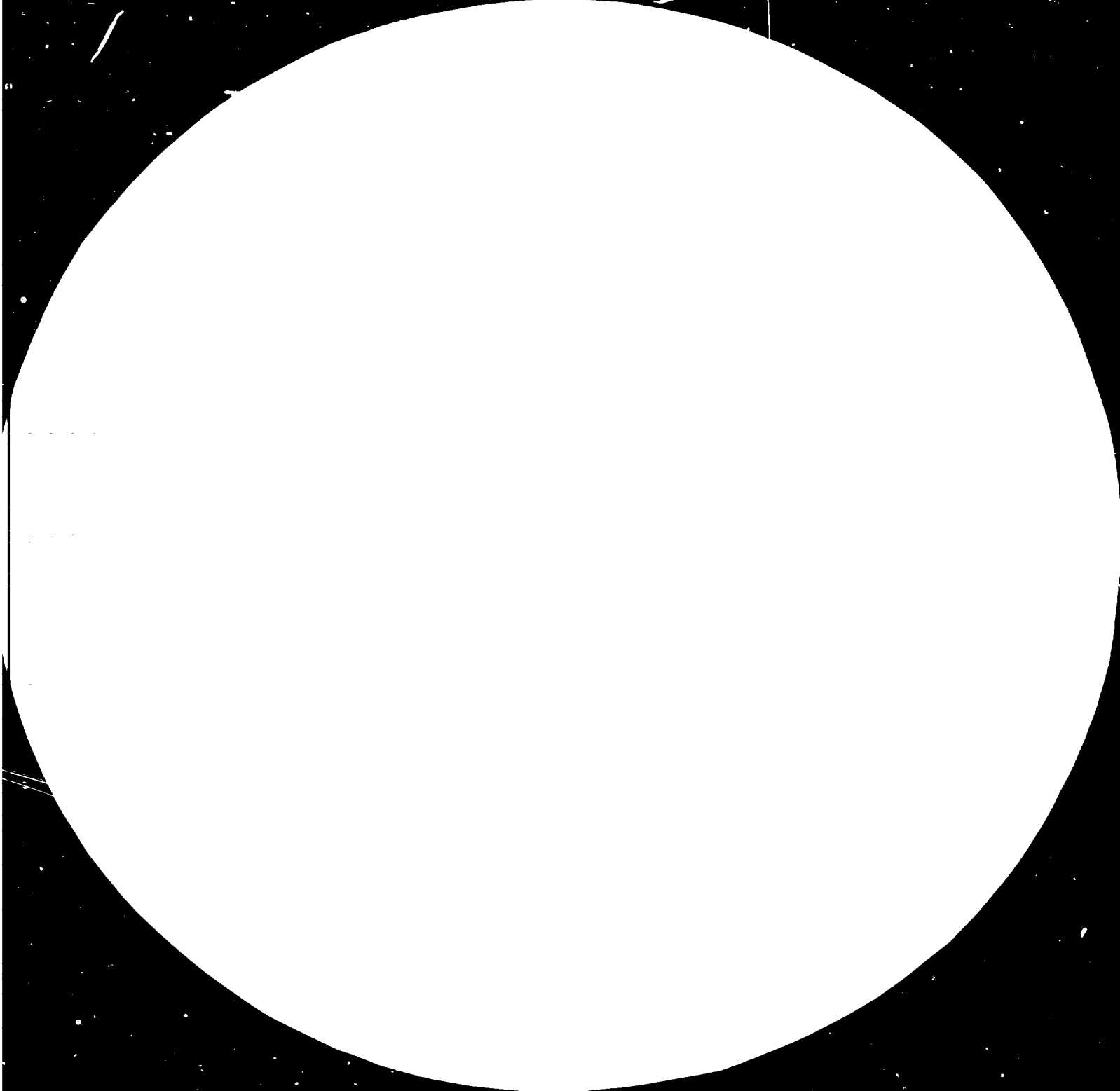
This law was enacted together with the Labour Law and applies to all non-Government workers regardless of nationality. But because work for 20 years is required to qualify for old-age pension (unless the worker has reached age 60 for males or 55 for females), most beneficiaries are Bahrainis. The coverage for old-age pension is now about 35,000 workers, which is probably about 70 per cent of the Bahraini work force. The pension is funded with 11 per cent of the wage to be paid by the employer and 7 per cent by the employee. Ceteris paribus these charges tend to raise the cost of Bahraini labour considerably above that for non-Bahrainis, though the health charges for expatriates may be somewhat higher.

In addition to the old-age pension, insurance is provided against job-related injuries, disability, death and unemployment (after qualifying for a pension). Three per cent of the monthly wage are contributed to workers' compensation type insurance, and other charges are set by the Minister of Labour and Social Affairs following recommendations by the Directors of the General Organization for Social Insurance. The system operates independent of the budget and is therefore assumed to be actuarially self-sufficient.

5.3. Wages

Little information is available on wage rates in the private or parastatal sector. However, wages - whether for Bahrainis or expatriates - are high. Including the costs of securing them and bringing them in, expatriates may cost up to twice as much per head as Bahrainis for unskilled or semi-skilled construction labour.

Good information is available on the Government pay scale. Monthly wages by grade and step within grades are shown in Table 23 of Statistical Appendix. A high school graduate starts with grade four (with a monthly





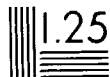
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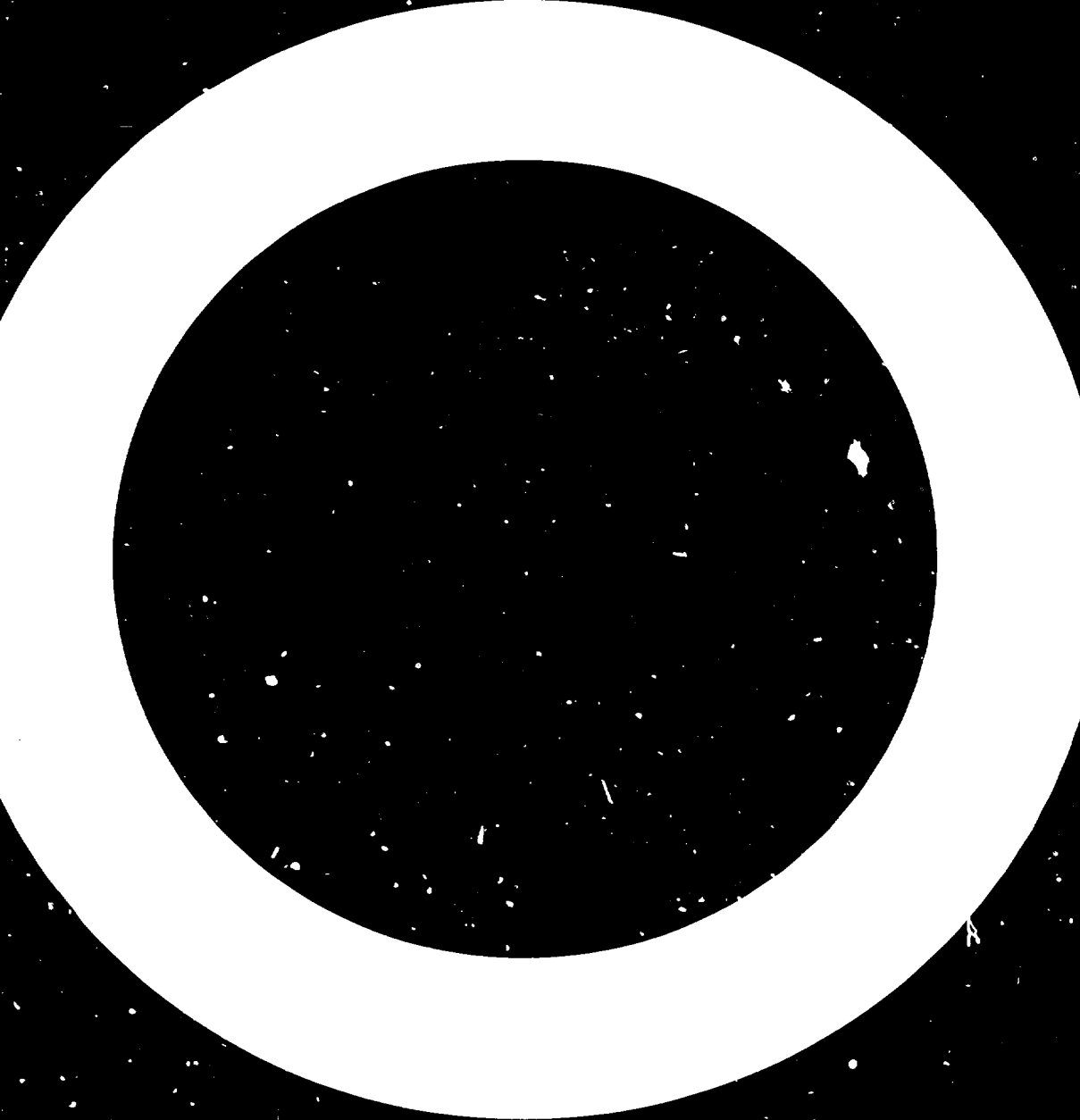


3.6



wage of BD 110, a college graduate starts with grade seven (BD 105.5), and engineers and doctors with grade nine (BD 250). Therefore, with an average of 25 days a month the lowest grade of Government employees are earning about BD 4.5 per day. Private remuneration is usually higher than that of the Government, leading to a movement out of Government employment recently. To counter this, the Government has increased the salaries of its employees several times, the latest increase was on July 1, 1977. At the beginning of this year a decision was taken to restrict wage increases, but "merit" increases will continue to enable the Government to compete with the private sector for qualified people. U

U Bahrain Current Economic Position and Prospects, Report No. 2053-2H, June 25, 1975, pp. 11-13



1. AGRICULTURE

Agriculture is one of the oldest occupations among Bahraini Nationals specially on the three major islands Muharraç, Umm Nasaan and Hawar.

The total area under cultivation has been increased by 665 Dounoms or 19.7 per cent compared to 1976.

Bahrain production of vegetables in 1977 increased by 4172 tons or 23 per cent compared to 1976. Area under vegetable crops totalled 4045 dounoms in the seven municipalities of Bahrain during the year 1976/77. The most common agricultural activities are vegetables and date production.

According to official statistics, some 3397 persons were employed in the agricultural sector in 1977. The main category of the employments in the sector was the medium 20 to 49 dounoms areas (1281 employments out of 3397 total), followed by the 50 to 99 dounoms areas (749), the categories 10 to 14 and 15 to 19 dounoms (623), as is shown in the following table:

Table 2: Estimated Employment in the Agricultural Sector (in 1977)

Areas in Dounoms	Employments
1 - 4	160
5 - 9	296
10 - 14)	623
15 - 19)	
20 - 49	1281
50 - 99	479
100 - 199	349
200 - 499	196
+ 500	49
<u>TOTAL</u>	3397

Source: Bahrain, Agricultural Directorate.

Table 1: Land Utilization in Bahrain, 1975

<u>Land Under:</u>	<u>Area</u> <u>(In dunim)^{1/}</u>
Vegetables	2,815
Alfalfa	3,046
Date Palms & Fruit Trees	10,631
Not in use	
- with scattered trees	10,725
- bare	9,262
Unclassified	542
<u>Total Arable Land^{2/}</u>	<u>37,021</u>

^{1/} 1 dunim = 1,000 square meters = 10,750 square feet

^{2/} This constitutes about 46 percent of the potentially cultivable agricultural land.

Source: FAO and Ministry of Commerce and Agriculture.

Bahrain's agriculture has continued to be of minor importance in the economy, although it is still a source of employment for about 4-5 per cent of the economically active population. After deducting subsidies its contribution to the country's GDP is negligible, accounting for only 1 per cent. With the increase in groundwater salinity the future of the industry is not bright. Some date palms are dying for lack of suitable water. Out of 390,000 date palms only 417,000 are producing, and dates are imported.

Arable land is confined to the north and northwest of Bahrain, and to north Sitra. It is estimated at 15,000 acres, of which only 5,500 acres (59 per cent) are cultivated. The total number of holdings under cultivation is about 355, giving an average holding of 10.4 acres. About 33 per cent of the cultivated land is owned by holders, while the rest is rented.

About two thirds of the agricultural land in Bahrain is planted to date palms, and the remainder to about 40 types of fodder and vegetable crops. There are also a few types of fruit trees. Alfalfa is a major cash crop, followed by tomatoes which is the leading vegetable crop in terms of total acreage. Alfalfa and other fodders are in keen demand.

Bahrain's agriculture is facing a dwindling labour force caused by higher income in other activities, and the declining social status of farming. The land tenure system is complex. Sixty-two per cent of the land is leased for a short period averaging 3 years. Agricultural practices are primitive; there is lack of agricultural credit. Marketing arrangements are inadequate, and urban development is making some encroachment on agricultural land.

The Agricultural Department maintains four experimental farms. It has been making serious efforts to encourage agricultural production through extensive subsidy programmes such as free services for pest control, veterinary treatment, and medicine for all animals except poultry, which receive a 50 per cent discount on the cost of medicine. It also provides discounts

on items acquired from the Department, such as shrubs, seeds, fertilizers, and spray for pest control. Discount for the latter two items reaches 50 per cent. In addition, subsidies are provided for mechanization and reclamation. Over the past two years, the Department initiated a programme for increasing onion production. Farmers participating in the programme were provided with seeds, fertilizer, spraying and tractor services free of charge. Those farmers also received price support for their output.

2. LIVESTOCK

Statistics on livestock are not adequate. The last estimate made by the FAO was for 1975. It reported about 6,000 head of cattle, 4,900 sheep, 14,500 goats and 350 camels. The number of chickens was estimated at about 176,000 (73,600 were laying hens), but this number has increased substantially. In 1974, the Agriculture Department began a programme for improving the quality of local sheep through the importation of the Awasi type (Kenyan) and selling the males to the farmers. The Department also imported about 100 Australian Friesian cattle for producing milk for the local market. Losses among calves are considerable due to the heat. In 1976 the Department began a research programme to find the best way to cope with the heat on the chicken farms. There are now about ten commercial farms in Bahrain selling meat and dairy products, but live animals and frozen meat have to be imported from New Zealand and Australia. The Bahrain Government and New Zealand recently formed a company "Bahrain and New Zealand Trading and Storage Company" for the importation of meat to meet Bahrain's demand as well as that of neighbouring countries. The company will construct a 320 million warehouse and cold storage with a capacity of 3,100 tons at the free zone of the Mina Sulman port.

Despite adverse climatic conditions, the volume of poultry production and eggs is rising rapidly. This is due to the considerable government backing in the form of participation in projects as well as in subsidies and import protection given to the private sector. In order to encourage local egg production, the Government first began to import feed to sell to egg producers at reasonable prices, which occasionally resulted in loss to the Government. Later the Government constructed

its own feed mill and is now selling the feed at cost. As a result, there has been a sharp increase in privately owned chicken farms, which now number about 20. A private company for producing chickens has been established.

Production of eggs is hampered by the adverse climatic conditions and consequently is being avoided by private investors. However, the Government established its own poultry farm in 1975. The farm, which is run by the General Poultry Company, was equipped by West Germany at a cost of \$1.3 million. It is to produce about 66,000 eggs a day at full capacity. Current production is about 22,000 eggs a day. Since Bahrain's annual consumption of eggs is estimated at about 45 million, the Government is considering expanding the facilities of the General Poultry Company, and has approached the Abu Dhabi Fund for financing. Also, another project, jointly owned by the Government and the private sector, is under construction for producing 15 million eggs a year at full capacity. The adverse climatic conditions and the apparent need for heavy subsidies, call into question the economic feasibility of egg production in Bahrain.

2.1. Poultry Deficit

The quantity of imported poultry has increased to local production. This might be explained as a result of disease in local poultry. In fact deficit has been soaring multiplied almost by 400 per cent between 1970 and 1977. Local production of poultry increased from 476 in 1970 to 524 in 1977, while consumption jumped from 1492 in 1970 to 4461 in 1977. Therefore, imports soared from 1016 in 1970 to 3937 or almost 400 per cent between 1970 and 1977 as is shown in the following table.

Table 3: Quantity of Poultry Imports, Domestic Products and Consumption (1970-1971)

Year	Consumption	Production	Imports
1970	1492	476	1016
1971	1735	649	1086
1972	2050	700	1350
1973	2711	763	1948
1974	2684	822	1862
1975	2837	822	2015
1976	3235	850	2385
1977	4461	524	3937

Source: Bahrain, Agricultural Directorate.

Bahrain is to have a study to determine what categories of agriculture are feasible without heavy subsidy and to advise the authorities on the level of resources needed and the most efficient way of deploying them. Authorities are aware of the importance of this study, and the Ministry of Commerce and Agriculture has approached the Kuwait Fund for financing it. Based on this study, the Government will formulate a long-term development strategy for the agricultural sector. ^{1/}

^{1/} ibid., pp. 18+19

2.2. Fishing

Fishing was Bahrain's major economic activity prior to the discovery of oil in the 1930s. Currently, fishing boats of the Gulf countries and others are fishing in Bahrain's waters. However, with the exception of shrimp fishing, fishing has diminished substantially in recent years. As a result, the share of the fishing sector in the GDP dropped from 0.6 per cent in 1973 to 0.1 per cent in 1977.

A combination of factors has led to the decline of local non-shrimp commercial fishing. Uncertainty of income, and the rise of incomes from other economic activities since the discovery of oil have led fishermen to seek other jobs. Other factors include the lack of interest by the young people who can easily earn high incomes in other relatively easier and more prestigious jobs. The last strong blow received by the local fishing activity came from the land reclamation programme that was begun along the coast of Bahrain in the early 1970s. Land reclamation has substantially reduced the areas for traditional fishing.

The remnant of the Bahrain fishing industry today constitutes a small number of fishermen using traditional fishing methods. Total output is far below domestic consumption. Also, marketing methods are rudimentary leading to large price fluctuations of the catch in the local markets.

In order to provide an adequate supply of fish, the Government established its own fishing operation in April 1975. The Fishing Project uses modern fishing and processing methods and is now supplying 40-50 per cent of the local market. The present fleet of the Project consists of five boats with a capacity of about 1.5 tons each. The catch is sold directly to the consumer through the project's eight shops scattered throughout the country, with three more shops to be opened soon.

This fishing operation is heavily subsidized (see Table 4 on the next page), since fish is sold at about 50 per cent below the market price.

Table 4: Fishing Project Operations

<u>Year</u>	<u>Catch</u> (tons)	<u>Revenue</u> (BD)	<u>Budgeted Cost</u> (BD)	<u>Budgeted Subsidy</u> (BD)
1975	115	n.a.	n.a.	n.a.
1976	247	59,306	450,000	390,194
1977	383	150,438	400,000	249,512

The Project's management argues that the subsidy will decline gradually, since the low prices are temporary and designed to enable the Project to enter the market, and because the undesired fish are being increasingly sold to foreigners through restaurants, hotels, BAPCO and other companies. It is doubtful, however, if this operation can become a viable commercial operation. The Project employs about 50 people.

As was mentioned above, Bahrain has been successful in using modern methods in exploiting her shrimp resources. Since 1967 the Bahrain Fishing Company has been exploiting the country's shrimp resources using modern methods in fishing and processing. The company, which is owned by the Ross Group of the UK (35 per cent) and the Bahraini public (65 per cent), operates 15 trawlers with an average length of 70 feet. It operates in Bahrain and Saudi waters. The Company is well managed and fully integrated in its operations, and as a result it has been realizing growing profits. No figures are available on the company's catch, but it is believed to be 600 tons annually from Bahrain. In 1977, the company's gross sales amounted to BD 2.9 million. The shrimp catch is exported, largely to the US, Europe and Japan, making shrimp the largest non-oil export item after aluminium.

It is believed that the sustainable potential of shrimp is about 1,000 tons, which is not fully exploited, although there are about 1,000 dhows from Bahrain and neighbouring countries exploiting shrimp in addi-

tion to the Bahrain Fishing Company. The dhow's operations should be regulated in order to allow orderly exploitation of shrimp resources without ecological harm. The U.S.P. F.I.O are carrying out a study to determine, among others, the fish potential in the Gulf area and the Gulf of Oman. The study is expected to be completed by 1973. U/

U/ Ibid., pp. 19-21

Table 5 Gross Sales and Capital of Bahrain Fishing Company^{1/}

Year Ended June 30	Gross Sales	Total capital employed
	(Bahrain dinars)	
1970	1,865,034	681,436
1971	1,406,720	652,360
1972	1,292,728	755,051
1973	1,827,150	966,186
1974	2,108,709	1,203,129
1975	1,850,115	1,211,602
1976	1,991,980	1,349,223
1977	2,929,656	1,513,722

Source: Annual Report of the Bahrain Fishing Company, various issues.

^{1/} Sales value of shrimp caught and other income, mainly processing shrimp for other countries.

CHAPTER 5

THE HYDROCARBON EXTRACTING SECTOR

PART I: CRUDE OIL

1. HISTORICAL BACKGROUND AND PRESENT STATE

The Bahrain Petroleum Company Limited (BAPCO) was formed in 1929 by the Standard Oil Company of California (SOCAL) on January 11, 1929. BAPCO played a crucial role both in the discovery of oil in Bahrain and in the later discovery of the vast oil reserves of Arabia.

The origins of BAPCO can be traced to December 1925, when Bahrain's first oil concession was granted by H.H. the Shaikh Hawed bin Isa Al Khalifah to a British group named Eastern and General Syndicate.

In 1927, an American corporation called Eastern Gulf Oil Company secured an option from the British Syndicate and promptly sent a geologist to explore and map the island of Bahrain. On December 21, 1928, the Bahrain rights were transferred to the Standard Oil Company of California (SOCAL). The following month, the Bahrain Petroleum Company (BAPCO) was formed as a subsidiary of the U.S. SOCAL. On August 1, 1930, the concession was formally assigned to BAPCO and this transfer became fully effective when a Mining Lease was granted to BAPCO on December 29, 1934.

This lease covered an area of approximately 100,000 acres of Bahrain's main island. Later negotiations resulted in the lease being varied, so that at one time it covered all Bahrain's land and offshore area.

In 1930-1931, SOCAL surveyed the island and decided that the oil prospects were good. Bahrain's first oil well was sunk at Jebel and Dukhan ("Mountain of Smoke") virtually in the Centre of the Island on October 16, 1931. On June 1, 1932, oil started flowing at a rate of 9,600 barrels per day.

The discovery, in an area previously thought to be unpromising to some oil geologists, eventually led directly to the discovery of the world's largest deposits of petroleum in Saudi Arabia and the Gulf States.

On June 30, 1936, California Texas Oil Company Limited (CALTEX) came into being, with the Bahrain Petroleum Company as the principal operating company of the Caltex Group. BAPCO ^{1/} is now a wholly owned subsidiary of CALTEX Petroleum Corporation, which is jointly owned by two U.S. oil multinational corporations: SOCAL and TEXACO Inc.

^{1/} BAPCO is one of more than 30 companies in the CALTEX Group manufacturing and marketing petroleum products in more than 60 countries of Asia, Africa and Australasia.

When Caltex was formed in 1936, oil production from the Bahrain field stood at 12,700 barrels per day. By 1970, field production had reached a peak of 76,000 barrels per day.

The drilling over the years of more than 300 wells for oil and gas, and the investment of hundreds of millions of dollars, resulted in a total crude production of over 650 million barrels of oil by the end of 1978.

Production from the fields now averages 55,000 barrels per day of crude and 359 million cubic feet of natural gas per day.

A new proposal for offshore exploration was submitted to Government by BAPCO on behalf of its associated companies.

Discussions between the Ministry of Development and Industry and BAPCO on 100 per cent participation by Bahraini Government in oilfield production and development and local marketing have continued along the year 1978.

2. SAMPLE PRODUCTION FIGURES FOR THE PERIOD 1956-1977

1,000 American Barrels per year ^{1/}

Since 1966 Bahrain also receives revenue from the Abu Saafa field located off-shore between Bahrain and Saudi Arabia. By an informal understanding between the ruling families of the two countries Bahrain is given half the net income from this field.

This source of revenue has been growing rapidly and has largely compensated the decline in production from the Bahrain field.

In the production of petroleum, efforts have been made in the last years to insure that the oil is extracted completely. To this purpose, the most advanced methods available are increasingly utilized. For example, there are methods for extracting oil that do not solely rely on natural pressure. By these methods it is possible to reach the residual quantities that the natural pressure is incapable of surfacing. One of these methods is called "secondary extraction". ^{1/}

As surveys indicate that the oil is being gradually depleted, serious explorations are under way to find new reserves in the country and its offshore area.

	1966	1968	1970	1974	1976	1977	%Change 1966-77 Annual Rate
Bahrain	22,521	27,598	27,973	24,597	21,288	20,475	- 9.35 %
Abu Saafa	11,488	22,733	27,310	45,000	39,000	45,000	+ 29.17 %

^{1/} National Paper submitted by Bahrain, United Nations Conference on Science and Technology for Development (UNCTAD), Vienna, Austria, August 1979, Document A/CONF.81/N.P.197, 10 May 1979, Arabic and English, page 7

3. GRADUAL AND DIFFERENTIAL TAKE-OVER OF THE HYDROCARBONS INDUSTRIES

Bahrain Government has applied a strategy of gradual and differential take-over of the Emirate's oil-extracting, gas gathering, oil refining, distribution and marketing branches.

Crude oil was discovered in Bahrain in 1932 and now represents 60 per cent of the State's income.

The principal field is at the centre of the main island, where the petroleum lies between 1800 and 2300 feet below the surface. Another field, Abu-Sa'afa, is exploited jointly with Saudi Arabia.

In September 1974, the Bahrain Government announced the purchase of 60 per cent of BAPCO's shares. On June 30, 1975, an agreement was concluded between the State of Bahrain and the Bahrain Petroleum Company (BAPCO) restituting to the State a 60 per cent share of BAPCO's rights in production and exploration oil concession in Bahrain.

The State also acquired 100 per cent of future gas discoveries, the decision took effect starting January 1, 1974.

A corporation called the Bahrain National Petroleum Company of Bahrain (BANOCO) was consequently established and entrusted with the responsibility of handling all matters related with petroleum and gas.

The concessions of companies cover a land area of 2000 square meters, including the islands as well as the major part of the off-shore areas within the territorial waters of Bahrain. Bahrain produces about 3,700,000 tons annually from the Jabal Ad Dukhan area.

A new step in the process of take-over of the oil products marketing and distribution was made starting on December 15, 1976, following the transfer of property and rights of marketing and distribution of oil products to the State-owned Bahrain National Oil Company. These rights were transferred from BAPCO, controlled at 60 per cent by the Bahrain Government, against 40 per cent by the joint venture California - Texaco (CALTEX) to the State Enterprise. In practice, according to Bahrain Minister of

Development and Industry, the process of transfer will take place following different transitional stages of co-operation between the two, public and private companies. ^{1/}

^{1/} "Bahrain, La Banoco chargée de la distribution des produits pétroliers", in: Le Pétrole et le Gaz Arabes, Vol.IX, No.197, 1er Janvier 1977.

3.1. BAHRAIN NATIONAL OIL COMPANY (BANOCO):

A New and Growing Role

The Company was founded by Admral Decree in February 1976. It began operating on the 1st July of the same year. Its major responsibility is to protect the interests of the Government of Bahrain in the fields of oil and gas. According to the Government's policy, the Company acts in co-operation with the Bahrain Petroleum Company Ltd. (BAPCO), to assure the maximum possible revenue for the Emirate. Concretely, BANOCO was entrusted with the distribution and marketing in domestic market of oil products, namely car petrol, kerosene and diesel fuels. BANOCO became the unique products distributor except for jet fuels storage and aircrafts supplying.

One of the objectives of the Company is that of infiltrating the various facets of the oil industry from pumping the oil from the well to distributing it among local and foreign consumers. Another responsibility is to supply the principal consumers of natural gas.

But it is Bahrain Petroleum Company Ltd. (BAPCO), a Caltex 100 per cent subsidiary, which operates Bahrain's oil refinery with a capacity of an estimated 280,000 barrels/day of crude oil and the capability of manufacturing all sorts of petroleum products. This Company also undertakes essential oil and gas field operations on behalf of the National Petroleum of Bahrain. It owns the power generators which are used in its various operations.

3.2. FULL GOVERNMENT CONTROL OF EXTRACTION AND DOMESTIC PRODUCT MARKET
VERSUS FOREIGN CONTROL OF REFINING AND PRODUCT EXPORTATION

Bahrain's Government has gradually taken over the country's oil and gas exploration and production as well as the marketing and distribution of oil products in the Emirate. To the contrary, the oil refining and the oil product export-marketing in the hands of CALTEX's subsidiary in Bahrain has been kept till very recently as we'll see. In 1975, the Government began by taking 60 per cent stake in BAPCO, the CALTEX's operating subsidiary in Bahrain.

In 1978, the Government took over the marketing and distribution of oil products in Bahrain. However, CALTEX will continue to own its 250,000-barrel-per-day refinery as well as market the plant's output abroad. Thus Bahraini Government took over the domestic product market but neither local refining nor the export product marketing.

On December 15, 1979, an agreement giving the Bahraini Government full control of the country's oil and gas exploration and production was signed by Bahrain's Development and Industry Minister and the President of the U.S. CALTEX. The Company was to be compensated for its 40 per cent share in BAPCO according to the latter's book value as at December 31, 1978.^{1/}

The partial takeover of the sector oil-production and extraction has been followed by a similar move to a governmental takeover of the whole local oil-product marketing and distribution in 1973, and of the gas exploitation and production in December 1979. 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 stake in 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 and is owned also by the Bahrain National Oil Company (BANOCO) with 75 per cent and the OPEC-sponsored Arab Petroleum Corporation (APICORP) with 12.5 per cent.

^{1/} "Bahrain Government Takes Over Full Control of Oil and Gas Exploration and Production", Vol. IX, No. 199. Arab Oil and Gas, Paris, 1 January 1980, p. 15.

Table 1 : Crude Oil Production, Abu Saafa Field
(In thousands of U.S. barrels)

Year	Production
1972	34,173
1973	39,411
1974	45,754
1975	21,327
1976	39,160
1977	40,377

Source: Ministry of Finance and National Economy.

Furthermore, the Bahraini Government was to open negotiations in May 1980 on the purchase of a stake in the Caltex-owned refinery in Bahrain. The Government is seeking a 60 % to 70 % participation in the 250,000 barrel-per-day plant which processes all of Bahrain's crude output of around 50,000 barrel/day as well as 200,000 barrel/day of Saudi crude.^{1/}

In Bahrain, onshore production was 20.19 million barrels in 1978 and output from the recently-developed joint Saudi-Bahrain Abu Saafa offshore field reached 25.48 million barrels.^{2/}

This put Bahrain's total 1978 production at 45.67 million barrels equivalent to 125,000 barrels a day, the smallest production in the Gulf.^{3/}

The total output was two per cent up on 1977 when onshore production stood at 21.23 million barrels and offshore output at 23.59 million.

The value of petroleum exports, including refined oil products, also rose, by 2.2 per cent, in 1978 to reach 585.5 million Bahraini Dinars (about 1.47 billion dollars), according to the report released on July 29, 1979 by the Bahrain Monetary Agency.

1/ Arab Oil and Gas, Vol. 9, No. 208, 16 May 1980, p. 16.

2/ The Bahrain Monetary Agency, annual report, 1978, Bahrain, 1979.

3/ Bahrain crude oil production from Bahrain's traditional onshore oilfields declined last year by 4.9 per cent but increased output from offshore wells shared with Saudi Arabia meant an overall increase according to official figures released on July 29, 1979. In: Emirates News, Abu Dhabi, Ramadan 6, 1399, July 30, 1979.

Table 2:
PRODUCTION OF CRUDE OIL AND NATURAL GAS IN BAHRAIN (1963 - 1975)

G A T E G O R Y	YEAR 1963	1969	1970	1971	1972	1973	1974	1975
CRUDE OIL (in thousand metric tons)	3792	3320	3347	3761	3503	3411	3360	3060
RATE OF ANNUAL CHANGE (in %)	-	-	-	- 2%	- 6%	- 3%	- 1%	- 9%
NATURAL GAS (in million cubic feet)	26617	33440	43307	37080	64383	82716	100059	101546
Rate of Annual Change in %	-	25.5%	29.5%	- 14%	75%	27%	21%	1%

Sources: Statistical Set of the Arab World 1963 - 1975, Vol. 1, April 1979 (in Arabic)

Table 3: Crude Oil Production and Refining
(In thousands of U.S. barrels)

Year	Production: Bahrain Field	Runs to Refinery			Stocks Processed	Total Processed
		Bahrain	Arabia	Total Crude Run		
1972	25,508	25,566	60,309	85,875	1,363	87,233
1973	24,948	24,882	64,744	89,626	1,127	90,753
1974	24,597	24,586	64,834	89,420	1,975	91,395
1975	22,309	22,113	49,901	72,014	1,119	73,133
1976	21,258	21,212	53,795	80,607	786	80,793
1977	21,236	21,237	73,233	94,470	763	95,233

Source: Ministry of Finance and National Economy.

4. DOMESTIC CONSUMPTION OF OIL PRODUCTS

Bahrain's consumption of oil products amounted to 3146 barrels per day during the year 1977, some 20 per cent higher than in 1976.

It was expected that for 1977 oil-product consumption in Bahrain was to increase in the same rhythm as in 1975. ^{1/}

In 1979 Bahrain consumed 132.1 million liters of gasoline; 75 per cent of this gasoline were of the Gasoline 90 category, and 25 per cent were Gasoline 93. In 1978 Bahrain had consumed 117.5 million liters of gasoline. As to pricing, in 1978 the prices of the entire category of Gasoline 95 had been changed by the mid of the year; the 75-per-cent Gasoline 90 sold at 40 fils/liter and the 25-per-cent Gasoline 93 at 60 fils/liter. ^{2/}

The decline in the dredging activities led to a reduction in the diesel consumption, which therefore fell from 146.3 million liters in 1978 to 114.5 million liters in 1979. The diesel price remained at 22.5 fils per liter.

While asphalt consumption slightly dropped from 23.4 million liters in 1978 to 21.6 million liters in 1979, with the price kept stable at 8 BD/lit, the LPG consumption rose from 13.1 million liters in 1978 to 21.2 million liters in 1979, with the price stable at 70 fils per kilogram. ^{2/}

^{1/} Bahrain. La BONOCO chargée de la distribution des produits pétrolières", in: Le Pétrole et le Gaz Arabes, Vol. IX, No. 187, 1^{er} janvier 1977.

^{2/} "Consumption and Prices of Petroleum Products in Bahrain", in: OAPEC Bulletin, Vol. 6, No. 5, Kuwait, OAPEC, May 1980, p. 31, table

PART II: NATURAL GAS

Bahrain possesses a significant supply of natural gas, which is considered as one of the major sources of energy. Reserves are estimated at between 8000 and 11000 billion cubic feet.

Production of natural gas in 1977 reached 121.2 million cubic feet. Production was estimated at 332 million cubic feet per day for 1977 compared with 294 million cubic feet per day for 1976, and 278 million cubic feet per day for 1975.

1. GAS UTILIZATIONS

Contrary to what happens in its Arab neighbours on the Gulf, gas is not flared in Bahrain.

During the period 1972-1975 the gas produced in the Emirate was re-injected in its oilwells. This may be related to the fact that the country is the first Arab and Middle Eastern oil exporter to face the run-off of its domestic hydrocarbon reserves in the short term. By re-injecting all the gas locally produced in the oilwells between 1972 and 1977 the country has been implementing a policy to extend the duration of domestic oil-reserves and save the associated gas.

However, during the years 1976 and 1977, one fourth to one third of the produced gas was re-injected in the oilfields. In this respect we suggest three combined considerations:

- 1/ that constant and relatively substantial amounts of gas have been re-injected over several years in the oilwells, while the latter's output was declining regularly;
- 2/ that the development of gas-consuming industries created an increasing demand for gas;
- 3/ that the economic value and marketing opportunities of gas were increasingly recognized.

Table 4:

Bahrain Gas Utilization Pattern (1972 - 1977) ^{1/}

	1972	1973	1974	1975	1976	1977
Produced	1838	2834	2876	2876	3043	3432
Re-injected	1838	2834	2876	2876	864	1069
Utilized					2179	2383
Flared	-	-	-	-	-	-
% Flared to Produced	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

^{1/} OAPIEC. Sixth Annual Statistical Report, 1977-1978, Kuwait, OAPIEC.

Table 5:

Natural Gas Production - mm.c.ft - (1974-1977)

Period	Arab	Khuff	Total
1974	20803	79256	100059
1975	20251	81295	101546
1976	20362	87102	107464
1977	18930	102298	121228

Source: State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: "Statistical Abstract 1977", Bahrain, October 1978, Table 68, p. 102.

Table 6:

Natural Gas Production (1974-1977) (in million cubic feet) ^{1/}

Period	Arab ^{1/}	Ruff ^{2/}	Total
1974	20,803	79,256	100,059
1975	20,251	31,295	101,546
1976	20,362	87,102	107,464
1977	18,930	102,293	121,223

Table 7:

Natural Gas Distribution in Bahrain (1974-1977) (in million cubic feet) ^{2/}

Period	Electricity	Alba	Refinery	Re-Injected	Awali	Total
1974	7,461	40,380	21,332	30,307	76	100,059
1975	10,292	40,870	22,131	28,136	67	101,546
1976	12,615	41,833	22,408	30,533	74	107,464
1977	16,167	42,096	25,129	37,765	71	121,223

^{1/} State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: Statistical Abstract, 1977, Bahrain, October 1978, Table 68, page 102.

^{2/} State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: Statistical Abstract, 1977, Bahrain, October 1978, Table 69, page 103.

2. NATURAL GAS PRODUCTION AND CONSUMPTION

Production of natural gas in 1977 reached 121.2 million cubic feet, a rise of 12.7 per cent with respect to 1976.

Re-injection utilized 31.2 of the gas production.

Aluminium Bahrain (ALBA) utilized 37.7 per cent of the production, the refinery 20.7 per cent and power stations 13.4 per cent (1).

According to another source(2), in 1977, about 26 per cent was re-injected to control the pressure in the oil fields; ALBA's aluminium smelting plant consumed 35 per cent of the total gas production, the Bahrain Petroleum Company (BAPCO) used 21 per cent of the gas in its refinery operations, the rest, 13 per cent, was used for the generation of electricity and for local consumption needs.

(1) BAHRAIN MONETARY AGENCY, Annual Report, 1977.

(2) National Paper submitted by Bahrain, United Nations Conference on Science and Technology for Development (UNCSTAD), Vienna, Austria, August 1979. Doc. A/CONF.81/NP.107. 10 May 1979, in Arabic and English. P. 7.

Table 3 : Natural Gas Production and Distribution ^{1/}
(In millions of cubic feet)

	1972	1973	1974	1975	1976	1977
Production						
Arab zone	20,655	21,170	20,303	20,251	20,360	18,930
Khuff zone	<u>44,033</u>	<u>61,685</u>	<u>79,256</u>	<u>81,295</u>	<u>87,100</u>	<u>102,288</u>
Total	64,688	82,855	100,059	101,546	107,460	121,228
Distribution ^{1/}						
Power stations	6,043	6,570	7,464	10,292	12,610	16,167
ALBA	26,969	37,960	40,930	40,670	41,830	42,096
Refinery ^{2/}	7,920	12,045	21,332	22,161	22,400	25,129
Reinjected	23,929	26,250	30,307	28,136	30,530	37,765
Avail domestic	—	—	76	67	70	71
Total	64,661	82,855	100,059	101,546	107,440	121,228

Source: Ministry of Industry and Development

^{1/} Excludes small amounts of flared gas and total distribution may not equal total production.

^{2/} Includes the low sulfur fuel oil facility beginning 1973.

^{1/} WORLD BANK: Report No. 2058-BE, "Bahrain, Current Economic Position and Prospects", June 28, 1978

Table 9:

Distribution of Gas in Bahrain: mm.c.ft. (1974 - 1977)

Period	Electricity	Alba	Refinery	Re-injected	Awali	Total
1974	7464	40880	21332	30307	76	100059
1975	10292	40870	22181	28136	67	101546
1976	12616	41833	22408	30533	74	107464
1977	16167	42096	25129	37765	71	121228

Source: State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics:
"Statistical Abstract 1977", Bahrain, October 1978, Table 69, p. 103.

3. FALL IN OIL VERSUS RISE OF GAS

In 1979, production of crude oil decreased in Bahrain while its production of natural gas increased. According to the last report published by the Bahrain Petroleum Company, the crude oil output amounted to 51,345 barrels per day in 1979, against 55,37 barrel per day in 1978, thereby decreasing by 7.2 per cent. On the other hand, production of natural gas increased by 8 per cent in 1979, thereby amounting to 388 million cubic feet per day compared to 359 million cubic feet in 1978.

PATTERN OF GAS UTILIZATION IN BAHRAIN IN 1979 ^{1/}

<u>Destination</u>	<u>Amount (in million Cf/d)</u>
used to feed ALBA complex with energy	118 million cf/d of gas
CALTEX Refinery	78 " " " "
for electricity power generators	79 " " " "
reinjecting in oil wells	113 " " " "
<hr/>	
T o t a l	389 million cf/d of gas
<hr/>	

Since DEcember 15, 1979, the Bahrain Government has taken over completely the crude and gas production facilities previously controlled by BAPCO, a joint-venture in which the Government holds 60 % equity and CALTEX the other 40 %.

^{1/} BAHRAIN PETROLEUM COMPANY, Annual Report 1979.

4. ASSOCIATED GAS

One of the signs of the efforts made in the field of energy by the National Petroleum Company of Bahrain is the Emirate's decision to exploit the hydrocarbon resources to the full. It has encouraged the National Petroleum Company to continue the project for recovering the gas from the oil fields which since the beginning of exploration had been allowed to escape into the air where it has been flared.

The implementation of the project will take almost two years. Bahrain will then be able to export LPG and naphtha. Furthermore, residual gases are to be added to natural gas in the generation of power or in the enrichment of petrochemicals. In this way, stored energy will be conserved.

4.1. Banoco Obtains \$75.5-Million Loans for its Project to Exploit Associated Gas

The Bahrain National Oil Company (Banoco) has obtained two loans totalling \$75.5 million under agreements concluded on 14 September. The loans are intended to finance the project for gathering and processing associated gas from Bahraini oil fields.

- The first loan, for a total of \$60 million, is intended to cover the foreign currency cost of the project, and is over a period of seven years with a grace period of three years; it will bear interest at 5/8 points above the Bahrain Interbank offering rate (Bibor) for the first three years and 3/4 points above Bibor for the four following years. The bank consortium is led by Gulf International Bank, and includes The Arab Petroleum Investment Corp. (Apicorp), Chase Manhattan, Chemical Bank International, Citicorp, Grindlays Bank, Lloyds Bank International and Scandinavian Bank;
- The second loan, which is marked in Bahraini dinars, is for a total of \$15.5 million (BD 6 million); it is over seven years with a grace period of three years, and it carries interest at 8.25 per cent. The bank consortium which is organizing this loan, the purpose of which is to finance the local currency cost of the gas project, includes Bahrain Investment Co., Bank of Bahrain and Kuwait, British Bank of the Middle East, Gulf International Bank, National Bank of Bahrain and Chartered Bank.

The project for gathering and processing gas from the Emirate plans to use 100 million cubic feet per day of gas to produce annually 80,000 tons of propane, 75,000 tons of butane and 215,000 tons of natural gasoline. It will be implemented by Japan Gasoline under a \$72-million contract(1); its cost (approximately \$100 million) will be financed 75 per cent by Banoco, 12.5 per cent by Apicorp and 12.5 per cent by Caltex(2). The work began two months ago and should be completed in the course of 1980.

Source: Vol.VII, No.169, Paris, October 1, 1973, p.16.

(1) AOG, 1 March 1973.

(2) AOG, 16 April 1973.

4.2. GAS GATHERING AND PROCESSING FACILITY

Bahrain's gas gathering and processing facility involving an investment of more than \$30m. is to be constructed by the Japan Gas Company. This is the first major industrial contract for the Japanese in Bahrain and is the emirate's first sizeable industrial venture since its participation in the aluminium smelter, the successful Aluminium Bahrain Company, in 1968.

The gas gathering project, which will collect the associated gas from Bahrain's onshore oil fields and produce propane, butane and naphtha for export, is the first major project for the 18-month-old Bahrain National Oil Company (Banoco). Banoco is the youngest state oil company in the Gulf, though Bahrain ranks as one of the oldest oil producers. At present the associated gas is either flared or vented at an estimated rate of around 100m.-110m. cubic feet a day.

A subsidiary company is to be set up by Banoco to manage the project. The proposed capital of the new company is \$20m. with minority stakes of 12.5 per cent, each being held by the Arab Petroleum Investment Corporation and Caltex, whose subsidiary, the Bahrain Petroleum Company, manages the island's oil fields. Apicorp is the \$300m. capital organisation of Arab Petroleum Exporting Countries investment company which lends at commercial rates.

The Japanese bid is understood to have been in the region of \$70m., and the total project including land reclamation and other construction work is expected to cost around \$90m. The financing of the new company has not yet been completed, but it is known that many of the 37 active banks in the \$15.7bn. Bahrain offshore market are interested in managing the financing. Construction is expected to start in the autumn and the plant to come on stream in 1980.

This gas gathering and processing facility is seen as a move by Bahrain to conserve its hydrocarbon resources as well as a further step towards diversifying its sources of foreign exchange income. Although no news

of possible purchasers of the gas products have been announced, the project is considered highly viable and likely to repay its initial borrowings within five years. 1/

1/ "Japanese win \$80m. order for Bahrain gas project" in:
The Financial Times, London, 20 February 1978

PART III : ENERGY CONSERVATION

When the National Petroleum Company of Bahrain (BANOOC) was established, one of its main objectives was the conservation of the underground energy resources that have been exploited continuously from the 1930s and that, consequently, are being gradually depleted.

Table 10

Bahrain Oil Wells (1970 - 1977)

Well Condition	Year							
	1970	1971	1972	1973	1974	1975	1976	1977
Completed	256	263	270	276	286	294	302	305
Producing Oil	203	215	211	203	207	212	225	229
Producing Gas	8	8	10	13	11	15	14	17
Gas Injections	7	7	7	6	5	5	8	8
Closed or Under Repair	16	10	16	26	26	26	26	26
Abandoned	22	23	26	28	28	28	28	28

Source: State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: "Statistical Abstract 1977", Bahrain, October 1978, Table 60, p. 93.

Table 11: Bahrain Oil Wells ^{1/}

Well Condition	1970	1971	1972	1973	1974	1975	1976	1977
Completed	256	263	270	276	286	294	302	305
Producing Oil	203	215	211	203	207	212	225	229
Producing Gas	8	8	10	13	11	15	14	17
Gas Injection	7	7	7	6	5	5	8	8
Standing	16	10	16	26	26	26	26	34
Abandoned	22	23	26	28	28	28	28	27

Source: Statistical Bureau, Ministry of Finance and National Economy, Bahrain.

^{1/} WORLD BANK: Report No. 2058-EH: "Bahrain, Current Economic Position and Prospects", June 28, 1978

Bahrain's limited crude oil reserves and declining production are disproportioned with the giant size of its export-oriented refinery. However, Saudi Arabia handed over 50 per cent of the ownership of Abu Safaa oil field. This has consequently compensated the decline of the crude reserves while partly covering the feedstock deficit in the local giant refinery. Operating companies resorted to Saudi and foreign supplies. Yet, while the crude and gas extractive sector appeals for moderate and cautious extraction policies, the size of oil refining pushes for a systematic and extended oil and subsequently, gas production to insure a high utilization of the refining capacity.

To measure the economic significance of this distortion in the extractive and processing structures and their related continued policy, a method could be to compare the cash revenues from the net crude exports and imports with cash revenues of refined product exports. However, in order to test and quantify the effective benefits or losses of the present structures and policy, it is indispensable to consider respectively the real value adding effectively authorized by the product cost and on the one hand, pricing systems, and on the other, local incomes generated from the refining sector and the latter's costs of operation, maintenance and/or modernization.

The assumed logic is applicable to the structural and policy-applying inadaptability of the imperative need to limit the rates of production and reserves depletion of the crude and (though partially) gas, with the amounts of gas being consumed and used, in the aluminium smelting industry, the electricity generation and the other local outlets for gas wherever used as energy source. However, the gas present uses in aluminium smelting, electricity production and for other local forms of consumption represent a little more than 75 per cent, not the totality, of the gas produced in Bahrain. It is therefore only when the gas to be produced, will no more totally satisfy the technical requirements of pressure-maintenance and secondary recovery in the crude oil fields, that the other utilizations of local gas will put the Emirate before a real dilemma. Yet, with the recent development of techniques of "tertiary recovery", the question could eventually be put whether the present pattern and scale of the gas utilizations, an industrial input for electricity generation and other

Table 12: FORECAST OF TOTAL NATURAL GAS CONSUMPTION

(In million scf of Khuff gas equivalent)

Year	Power Generation BSED	ALBA	Refinery	BAPCO (Gas Injection)	Avail Domestic	Total Gas Con- sumption	Cumulative Gas Consumption billion scf	% of actual reserves
1978	19,110	42,010	34,740	33,980	130	129,970	254	2.5
1979	21,960	42,010	36,570	35,060	130	135,730	390	3.9
1980	24,600	42,010	38,390	35,800	130	140,930	531	5.3
1981	27,520	42,010	38,740	36,880	110	145,260	676	6.8
1982	30,800	42,010	38,740	37,620	110	149,280	825	8.3
1983	34,510	42,010	38,740	38,700	110	154,070	979	9.8
1984	38,640	42,010	38,740	39,440	110	158,940	1,138	11.4
1985	43,280	42,010	38,740	40,190	90	164,310	1,303	13.0
1986	47,630	42,010	38,740	40,890	90	169,360	1,472	14.7
1987	52,330	42,010	38,740	41,640	90	174,810	1,647	16.5
1988	57,610	42,010	38,740	42,010	90	180,460	1,827	18.3
1989	63,380	42,010	38,740	42,710	90	186,930	2,014	20.1
1990	69,730	42,010	38,740	43,090	70	193,640	2,208	22.1
1991	75,290	42,010	38,740	43,090	70	199,700	2,407	24.1
1992	81,280	42,010	38,740	-	70	162,100	2,569	25.7

Source: Noto Columbus: BSED Thermal Power Plant Study

Table 1):

Total Commercial Energy Consumption Forecast for Bahrain
Most likely Outcome of Three Scenarios (10⁶ metric tons) ^{1/}

1975	1985	1990	2000
2.10	4.23	5.02	7.47

^{1/} UN World Energy Supplies, 1972-1976, United Nations, Series J, No. 2.

uses, does not already reflect a grave challenge to Bahrain's economic structures and policy. In any case, the dependence of the aluminium smelting, electricity generation and domestic consumption on oil-related gas, indicate the limited diversifying effect of gas in the largely oil-dominated economy of Bahrain. Finally, the steady increase of the crude prices on which the gas price is acceleratingly and irreversibly aligning, open new prospects for the economic relationships both of local refining to crude availabilities and that of gas utilizations to gas availabilities.

1. RECENT RESULTS

In 1978 production was estimated at 7.8 per cent below 1977, and for longer-term projection purposes a decrease of 6.5 per cent a year is being used. If this decline continues to 1995, production in that year would be about 6.8 million barrels. This would approximately equal the crude required to make products for domestic needs. At that stage, Bahrain's reserves would still be about 50 million barrels. Thus Bahrain may remain self-sufficient in crude oil beyond the year 2000.

Bahrain's oil fields, which produce around 65,000 barrels a day, are estimated to have a further life of about 20 years, which means Bahrain will be the first Gulf oil exporter to exhaust its known reserves. But the island's natural gas reserves have been placed in the 6,000 - 10,000 bn. cubic feet league. ^{1/}

In 1977 oil exports increased in value by 23.5 per cent to BD 572.5 million or \$1,475.5 million, while oil imports increased by 31.5 per cent to BD 357.8 million or \$922 million. The 1977 oil revenue of Bahrain rose to BD 180.7 million (including revenues coming from Abu Saafa production), or \$455.7 million.

^{1/} "Japanese win \$80m. order for Bahrain gas project" in:
The Financial Times, London, 20 February 1978

2. OIL REVENUE

In the 1978 budget Bahrain's own oil, together with revenues from the offshore field of Abu Saafa, which is shared with Saudi Arabia, is expected to provide an income of \$404.5m. out of total estimated revenues of \$700m.^{1/}

As a result of oil price increases decided by OPEC and adopted by Bahrain, the country's oil revenues are expected to rise to BD 205 million (\$530 million), as against BD 160 million (\$415 million) in 1978. Bahrain may thus increase its 1979 oil revenues by 28 per cent, at a time when its production rate continues to decline. In the first quarter of 1979, Bahrain's crude oil production amounted to 51,000 b/d, as against 55,317 b/d for the whole of 1978 (AOG, 15 April 1979). A production record of 76,639 b/d was attained in 1970.^{2/}

1/ "Japanese win 380m. order for Bahrain gas project", in: The Financial Times, London, 20 February 1978.

2/ "Bahrain - Oil Revenues May Increase by 28% in 1979", Vol. VIII, No. 169, Arab Oil and Gas, Paris, August 1, 1979, pp. 16-17.

2.1. Economy benefits from oil price hike

The increased oil revenue resulting from the latest OPEC price hike (MEED 29:6:79, page 14) is to go into social projects - housing, education and health - and industrial infrastructure.

Oil revenues have increased to about BD 205 million (\$ 534 million) from BD 160 million (\$ 416 million). "You will see a lot of activity over the next two years," said assistant Finance Ministry undersecretary Isa Borshaid.

Oil ministry sources predict an OPEC extraordinary meeting before the scheduled meeting in December which could further boost oil income, the Bahrain weekly Gulf Mirror says.

Source: MEED - Middle East Economic Survey, Vol 23, No. 30, 27 July 1979,
p. 20

Table 14:

Value of Oil Exports and Imports

In U.S. Dollars 1977 ^{1/}

Bahrain Crude Exports	Saudi Arabian Crude Exports	Value Total 1977 Exports	Saudi Arabian Crude Imports	Other Crude Imports	Value Total 1977 Imports	Net Crude Balance Value in U.S. Dollars 1977
256,478,894	962,210,301	1,218,689,195	891,673,352	14,899,823	906,573,175	+ 310,116,020

^{1/} The Bahrain Petroleum Company (BAPCO), in State of Bahrain.
Ministry of State for Cabinet Affairs, Directorate of Statistics,
Statistical Abstract 1977, Bahrain, October 1978 (compiled from
tables 70 and 71, pp. 104 and 105).

3. EXPLOITATION OF WASTED ENERGY

As it has been already pointed out the use of gas in the generation of electric power in several ways such as the production of aluminium, which is extracted from alumina using gas turbines with a low output thermal capacity, leaves sizeable quantities of energy unused. Accordingly, it is possible to recover the dissipated thermal energy with the help of equipment designed especially for this purpose. Likewise, it is possible to make use of wasted thermal energy in areas such as the generation of local electric power. It is also possible to utilize this energy in the following two ways:

- (a) By putting it to work in the form of high/low steam pressure, hot air, etc.
- (b) Electric power generation or drinking water.

The extent to which this energy can be supplied to one second purpose in a country with Bahrain's climatic and natural conditions should be obvious at once.

A UNIDO - World Bank mission conducted a study of measuring thermal capacity and arrived at the following figures:

Present fuel consumption	108 million cubic feet per day
Volume of wasted gas	207 million cubic feet per day
Present thermal capacity	21.4 per cent.

By using the proper equipment, the gas can be cooled to 257°F , thereby recovering most of the wasted energy and bringing capacity up to 89.8 per cent.

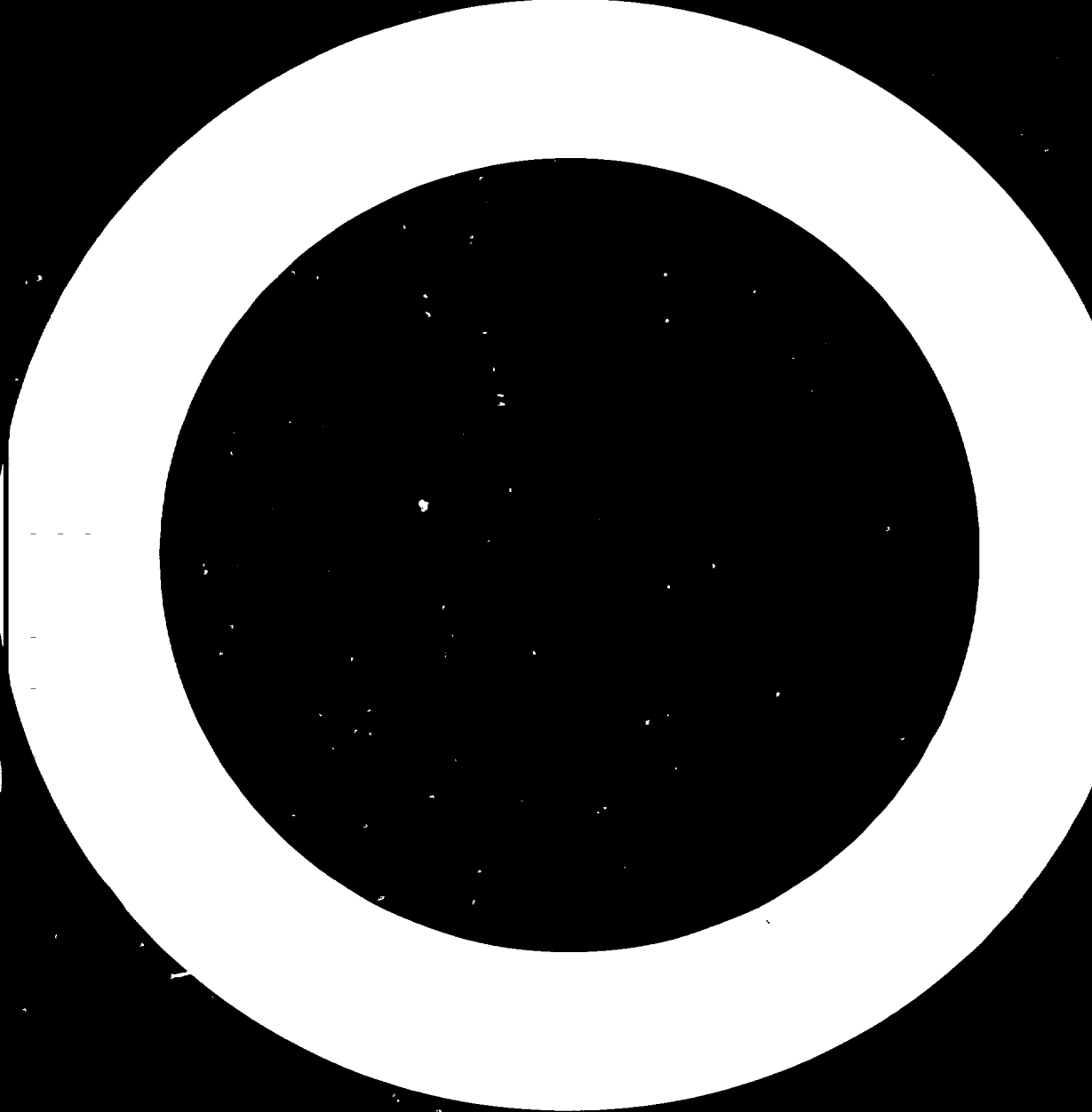
Table 1

WORLD ENERGY PRODUCTION, CONSUMPTION AND STOCKS FOR THE YEARS 1960, 1973 and 1976

Year	Primary Energy Production per Category					Energy Transformation			Commercial Energy Consumption			Commercial Exchanges			Stocks (1960-1973) + (1973-1976)								
	Total	Solids	Liquids	Gases	Others	Electricity	Working Total	Energy per Tonne	Oil	Total	in M/1000	per Person	% Liquids	Net Total	Energy Imports	Energy Exports	Consumption		Production		Refinery Capacity		
																	Total	Per Person	Total	Per Person		Total	Per Person
1960	3.34	-	3.32	0.03	-	55	560	31 071.6		0.08	400	100.0	100.0	103.0	-	-	0	0	0	0	0	0	0
1973	7.01	-	5.01	2.13	-	136	599	15 711.0		2.79	10,011	6.1	6.1	46.1	-	-	31.2	20.2	6.1	3.2	0.8	0.8	0.8
1976	7.11	-	5.21	2.30	-	230	631	18 801.2		3.10	11,228	8.1	8.1	56.1	-	-	33.0	21.0	8.1	3.2	0.8	0.8	0.8

1) "Liquids" includes oil, coal, gas, and other hydrocarbons.
 2) United Nations Conference on Trade and Development, Handbook of International Trade and Development Statistics 1973, United Nations New York, 1974, pp. 242-246.

a) In New US and Natural Gas Liquids.



1. HISTORICAL BACKGROUND

After the discovery of oil in Bahrain, SOCAL started to build a small refinery there in 1935 with the intention of marketing the refined petroleum products in the United States.

In 1936, four years after oil had been discovered in Bahrain, a small refinery was under construction to process the oil from the new field. ^{1/}

At the outset of their operations CALTEX subsidiaries comprised the Bahrain Petroleum Company Limited and six marketing companies based in Australia, New Zealand, China, the Philippines, India and Africa. They produced 16,400 barrels of crude oil per day from the Bahrain field, owned a not-yet-completed 10,000 barrel-a-day refinery and three chartered tankers.

From these beginnings on, CALTEX has grown to a group of more than 30 affiliated companies. Successive expansions have developed the Bahrain refinery to the point which is now the largest in the CALTEX system, with a rated capacity of 205,000 barrels a day.

The entire output from Bahrain's oilfield is processed at this huge plant, together with sizable quantities of crude oil available to CALTEX from other sources. Via tanker shipments from Bahrain's Sitra Island wharves, the refinery serves customers throughout CALTEX operating areas.

The refinery processes not only Bahrain crude, but also crude brought in from Saudi Arabia via a 200,000-barrels-per-day, 34-mile Arabia-Bahrain pipeline. When the first 12-inch pipe was laid in 1945, with 17 miles of the line under water, it was the world's largest commercial submarine pipeline.

^{1/} CALTEX, a panorama of petroleum, New York, 1969. CALTEX PETROLEUM CORPORATION, pp. 11 and 13.

Table 1

Crude Oil Runs to Refinery (1970 - 1977)
(in Thousand U.S. Barrels)

Description	Year							
	1970	1971	1972	1973	1974	1975	1976	1977
Bahraini	27941	27392	25567	24882	24586	22113	21212	21237
Arabian	63518	65943	60309	64744	64521	49901	58795	73233
Total Crude run	91459	93335	85876	89626	89107	72014	80007	94470
Other Stocks	1266	754	1363	1127	1975	1119	785	763
Total	92725	94089	87239	90753	91082	73133	80792	95233

Source: State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: "Statistical Abstract 1977", Bahrain, October 1978, Table 59, p. 92.

BAPCO's refinery has become the largest of the CALTEX processing plants, manufacturing a wide range of finished petroleum products including LPG, gasoline, naphthas, jet fuels, kerosines, gas oils, fuel oils, marine bunkers and asphalt.

The wide range of products manufactured by the refinery are shipped abroad to CALTEX, SOCAL and TEXACO customers worldwide, through BAPCO's Sitra terminal which loaded its first cargo (crude oil) on the "El Segundo" in June 1934. Many major investments and modifications to the terminal and wharves since then enable to berth an average of 100 vessels a month of up to 110,000 DWT in size.

1.1. RECENT PERFORMANCE

The refinery continued to operate at a high level throughout 1978. A total of 39,952,745 U.S. barrels of crude oil and other stocks were processed during the year, representing a daily average of 246,446 barrels. ^{1/}

CRUDE OIL RUNS TO REFINERY

<u>CATEGORY OF CRUDE PROCESSED</u>	<u>U.S. BARRELS</u>
Bahraini	20,237,013
Arabian	<u>68,969,436</u>
Total crude	89,206,509
Other stocks processed	<u>746,236</u>
Grand total for 1978	39,952,745
Daily average	<u>246,446</u>

^{1/} BAPCO, Annual Report '78, p. 3

<u>PRODUCTS MANUFACTURED</u>	<u>U.S. BARRELS</u>
Naphtha	9,631,267
Gasoline	11,099,416
Kerosine	911,632
Aviation turbine fuel	11,756,193
Diesel oil	23,375,962
Fuel oil	29,373,332
Asphalt	1,306,654
Heavy lube distillate	<u>379,304</u>
Total	<u>83,333,360</u>

Much progress has been achieved on the two interdependent projects, referred to collectively as the Project for the Centralized Power and Steam Generation, to replace existing power facilities and to modernise the electrical distribution system in the Refinery. The overall project was 75 per cent complete by the end of 1978.

1.2. LPG STORAGE AND PUMPING FACILITIES

With the installation of a new manifold LPG storage and pumping facilities have been significantly upgraded.

Design work was completed on a \$ 2.5 million asphalt converter. When commissioned mid-1979, the new unit will have a capacity of 17,000 long tons per month. The project will eventually increase the total asphalt production capability to 29,000 long tons per month.

The final phase of the project to increase bulk asphalt shipping facilities was to be completed during the first quarter of 1979. The

project in total has involved the purchase of additional road tankers and the installation of new pumps, a heater, piping, and facilities to load bulk asphalt to ships at Wharf No. 2. Total cost of the project is \$ 2 million. Bulk shipments of asphalt from the BAPCO plant, primarily to the Gulf region, increased by 20 per cent during the previous year and averaged 13,329 long tons per month.^{1/}

^{1/} BAPCO Annual Report 1978, p. 5

Table 2

Crude Oil Produced and Processed (1967-1977)
In Thousand U.S. Barrels

Year	Produced	Processed
1967	25370	89166
1968	27598	84545
1969	27774	85987
1970	27973	92725
1971	27346	94089
1972	25508	87239
1973	24948	90753
1974	24597	91082
1975	22309	73133
1976	21288	80792
1977	21237	95233

Source: State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: "Statistical Abstract 1977", Bahrain, October 1978, Table 61, p. 93.

Table 3: Refined Oil Products ^{1/}
(In thousands of US barrels)

	1972	1973	1974	1975	1976	1977
Naphtha	5,992	7,745	10,069	5,638	7,919	9,062
Gasoline	7,326	8,607	9,733	9,667	9,520	9,829
Kerosene	949	1,529	3,681	2,939	5,361	3,265
Aviation turbine fuel	15,060	11,839	7,309	8,842	7,833	11,723
Diesel oil	19,720	20,449	18,284	20,184	19,475	23,571
Fuel oil	32,743	35,872	37,877	28,056	26,476	33,687
Lube distillate	630	--	666	548	71	334
Asphalt	<u>320</u>	<u>356</u>	<u>261</u>	<u>548</u>	<u>839</u>	<u>1,081</u>
Total	82,748	86,307	87,820	76,422	77,494	92,555

Source: Ministry of Finance and National Economy.

^{1/} WORLD BANK: Report No. 2058-BH: "Bahrain, Current Economic Position and Prospects", June 23, 1978

Table 4

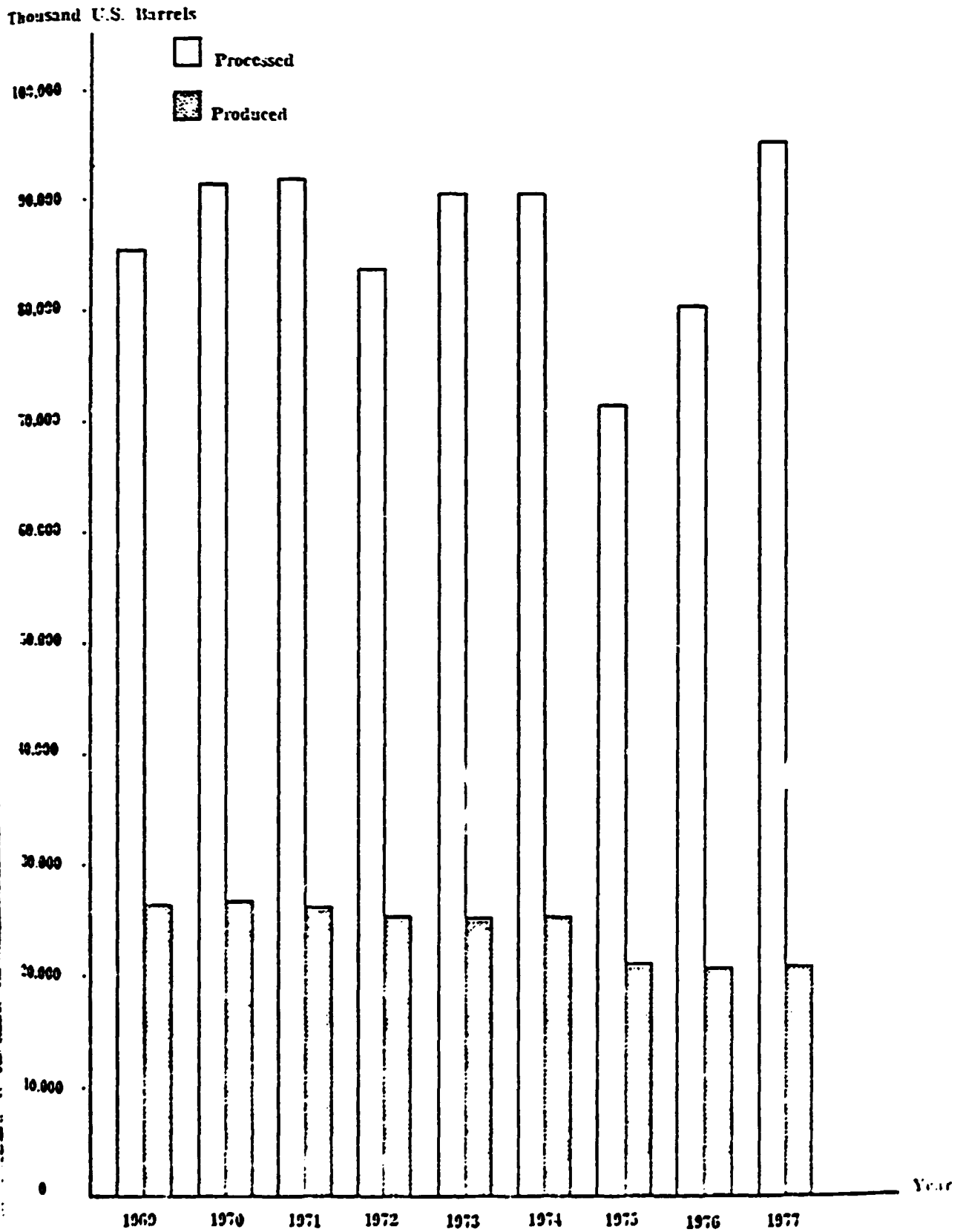
Refinery Output (in thousand U.S. Barrels) 1967 - 1977

Period	Naphtha	Motor Spirit	Jet Fuel	Kerosine	Gas Oil	Diesel Oil	Heavy Lub. Dist.	Fuel Oil	Asphalt	L.P.G.	Others	Total
1967	8425	--	13407	2264	--	13326	638	37844	18	--	8431	84352
1968	6042	--	15227	1895	--	13682	1084	35076	41	--	6946	79993
1969	7640	--	13752	1102	--	16147	954	35551	19	--	8037	83202
1970	7462	--	13892	1075	--	16993	1098	39347	136	--	8225	88228
1971	5559	--	15634	1139	--	19265	1165	38739	186	--	8268	89956
1972	6070	--	15033	950	--	20400	--	35453	320	--	7335	85561
1973	7652	8598	11839	1528	14227	5477	706	35872	356	--	--	86253
1974	10070	9733	7310	3681	11684	6600	666	37877	261	--	--	87882
1975	5488	9617	8515	3265	16264	3487	526	28074	548	190	--	76364
1976	7919	9520	7833	5361	16017	3458	71	26476	839	255	--	77750
1977	9062	9829	11743	3265	20346	3226	344	33687	1084	377	--	92962

Source: State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: "Statistical Abstract 1977", Bahrain, October 1978, Table 6b, p. 99.

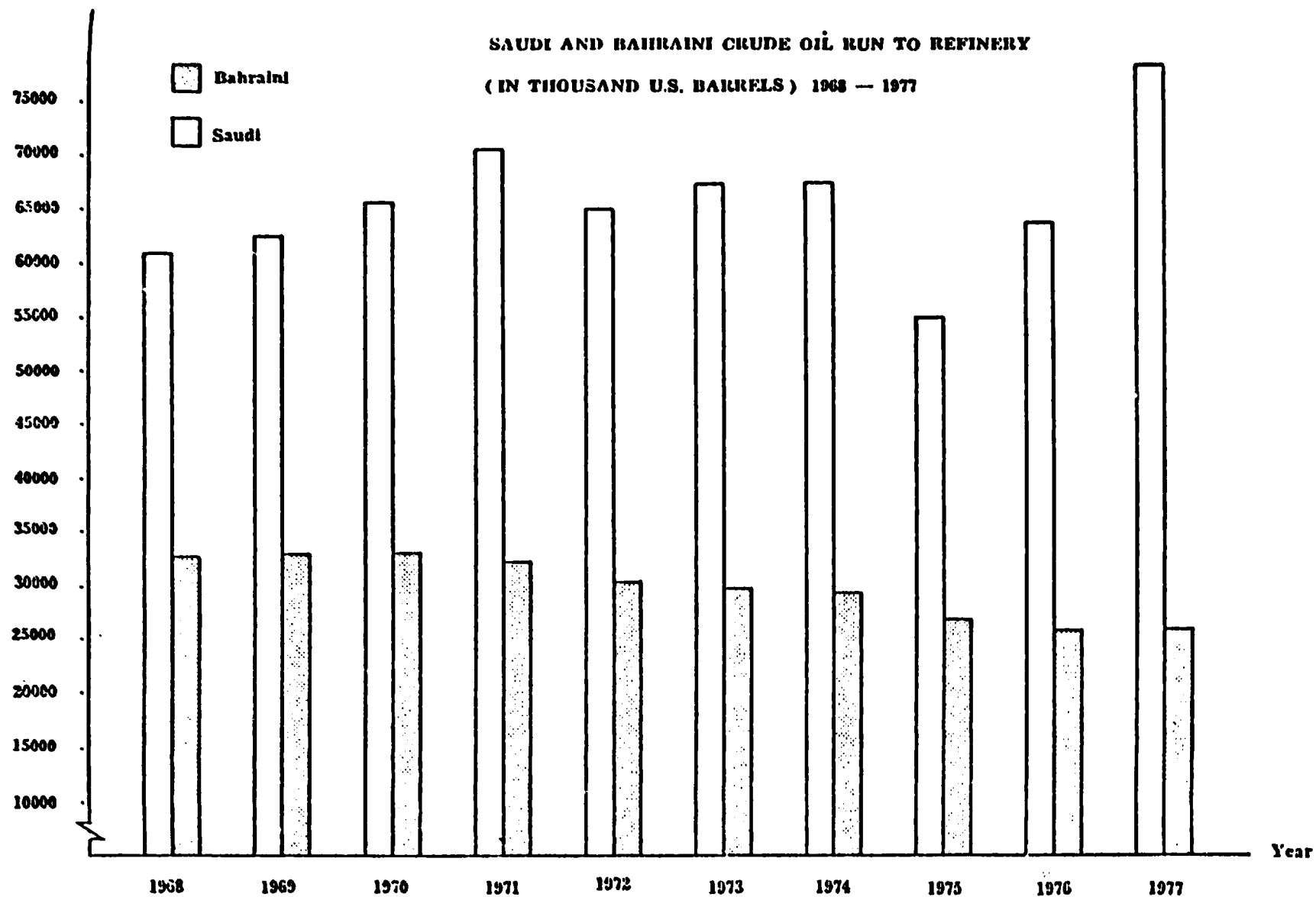
Table 5

CRUDE OIL PRODUCED AND PROCESSED (1969 - 1977)



Source: State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: "Statistical Abstract 1977", Bahrain, October 1978, p. 94.

Table 6



Source: State of Bahrain, Ministry of State for Cabinet Affairs, Directorate of Statistics: "Statistical Abstract 1977", Bahrain, October 1978, p. 97.

2. PRODUCTION OF CRUDE + REFINED PRODUCTS

According to the 1977 annual report of the Bahrain Monetary Agency, the production of crude oil in 1977 held nearly steady with 1976 at 21.2 million barrels. The entire production fed the Emirate's refinery, which in 1977 processed 95.2 million barrels of crude (17.3 per cent more than in 1976) and produced 92.6 million barrels of refined products (+ 19.5 per cent). The production of aviation fuel increased by 49.7 per cent, that of lube oil by 37 per cent, that of asphalt by 29 per cent, that of fuel oil by 27 per cent, that of naphtha by 14.4 per cent, and that of gasoline by 3 1/2%. On the other hand, the refinery's kerosene production dropped by 39 per cent. ^{1/}

^{1/} Arab Oil and Gas, Vol. VII, No. 167, Paris, Sept. 1, 1967, p. 13

In 1979, the production of petroleum products in Bahrain added up to 244.2 thousand barrels per day, compared with 242.0 thousand barrels per day in 1978. The production of gas oil decreased from 57.7 thousand barrels per day in 1978 (23.3 per cent of the 1978 total refined production) to 55.4 thousand barrels per day in 1979 (22.7 per cent of 1979 total); gasoline production also decreased to 25.3 thousand barrels per day in 1979 or 10.4 per cent of the total) against 30.4 thousand barrels per day - or 12.6 per cent in 1978. On the other hand, the naphtha production increased to 29.4 thousand barrels per day or 12.0 per cent in 1979, compared with 25.2 thousand barrels per day or 10.4 per cent of the total in 1978.^{1/} That of asphalt slightly increased from 3.6 thousand barrels per day or 1.5 per cent in 1978 to 3.8 thousand barrels per day or 1.6 per cent in 1979. The kerosene production slightly decreased in 1979 but maintained its share of 1.0 % of the total refinery production.^{1/}

PRODUCTION OF PETROLEUM PRODUCTS IN SAHRAIN, 1979
(thousand b/d)

Products	1979		1978		% Change
	Quantity	%	Quantity	%	
LPG	1.3	0.5	1.2	0.5	8.3
Naphtha	29.4	12.0	25.2	10.4	16.7
Gasoline	25.3	10.4	30.4	12.6	(16.8)
Jet Fuel	32.3	13.2	32.2	13.3	0.3
Kerosene	2.4	1.0	2.5	1.0	(4.0)
Gas Oil	55.4	22.7	57.7	23.8	(4.0)
Diesel Oil	9.5	3.9	7.7	3.2	23.4
Heavy Lube					
Distillate	0.4	0.2	1.0	0.4	(60.0)
Fuel Oil	84.4	34.5	80.5	33.3	4.8
Asphalt	3.8	1.6	3.6	1.5	5.6
Total	244.2	100	242.0	100	1.0

^{1/} OAPEC: "Production of Petroleum Products in Bahrain, 1979", in OAPEC Bulletin, Vol. 6, No. 5, Kuwait, May 1980, Statistics, p. 31

Table 7

Refined Products Consumption in Bahrain, 1973 - 1977 ^{1/}

(Aggregate Consumption in 1000 b/d, per capita consumption in barrels per annum, and population in thousands)

Aggregate Consumption			Average Annual Growth Rate	1973		1977	
1973	1977	% 1973-1977		Population	Per Capita Consumption	Population	Per Capita Consumption
2.0	5.3	265	27.5	236	3.1	17.854	1.7

^{1/} Al Wattari, Abdelaziz, "Oil Downstream: Opportunities, Limitations, Policies", Kuwait, 1980, Organisation of Arab Petroleum Exporting Countries, Table 2b, p.68.

Table 8

CONSUMPTION AND PRICES OF PETROLEUM PRODUCTS IN BAHRAIN 1/

Products	1979		1978	
	Consumption (million liters)	Price	Consumption (million liters)	Price
Gasoline ⁽¹⁾	132.1		117.5	30/40 fils/liter
Diesel	114.5 ⁽²⁾	22.5 fils/liter	146.3	22.5 fils/liter ⁽³⁾
Asphalt	21.6	8 BD/LT	23.4	8 BD/LT
LPG	21.2	70 fils/kg.	18.1	70 fils/kg.

(1) In 1978 all gasoline 95 with price change mid year. In 1979, 75% Gasoline 90 at 40 fils/liter, 25% Gasoline 98 at 60 fils/liter.

(2) Reduction caused by decline in dredging activities.

(3) Domestic market price.

Source: Official Information.

1/ OAPEC Bulletin, Vol. 6, No. 5, Kuwait, May 1980, p.31

Table 9 : Value of Refined Oil Exports

(In millions of U.S. dollars)

Year	Total Value	Attributable to Bahrain Crude
1972	240.11	63.11
1973	305.88	87.39
1974	988.71	264.46
1975	892.73	252.20
1976	1,002.53	247.14
1977	1,010.14	212.23

Source: Ministry of Development and Industry.

Table 10

OECD IMPORTS OF CRUDE OIL AND REFINED PRODUCTS FROM SAUDI ARABIA

IN 1977 AND 1978

(thousand barrels per day)

	<u>1977</u>	<u>1978</u>
Japan ^{1/}	38	36
USA ^{2/}	3	3
Canada	0	0
West Germany	0	0
France	0	0
U.K.	2	4
Italy	0	0
Netherlands	0	0
Spain	0	0
Other	0	0
Total Western Europe	2	4
Australia	0	0
New Zealand	0	0
Total OECD	48	43

1/ Producers traced to source of crude oil.

2/ Excluding government-owned stockpiles offshore.

Source: "Handbook of Economic Statistics 1978 - A Research Aid",
October 1978, table 91, and

"Handbook of Economic Statistics 1979", August 1979, table 92.

9. WITHDRAWAL OF U.S. MULTINATIONAL CORPORATIONS AND FURTHER SAUDI INVOLVEMENT

Saudi Crude Supplies permit Bahrain to provide 60 per cent of BAPCO Refinery Feeds.

Bahrain has been providing 50,000 barrel/day of its domestic production for the running of the Bahrain Petroleum Refinery. This amount represented 20 per cent only of the crude processed by BAPCO Refinery.

Saudi Arabia, which had already considered to share the Abu Saafa oil revenue with Bahrain and purchased a notable share in the Aluminium Bahrain Company, has committed itself to provide the Bahraini Government with 100,000 bbl/d of Saudi crude oil at official sales prices.^{1/} This amount will partially meet the 250,000-bbl/d capacity of the BAPCO Refinery.

As a result, the Bahraini Government will provide from now on 150,000 bbl/d, of which 50,000 bbl/d will come from the Emirate's domestic oil output and 100,000 bbl/d will be Saudi crude.

This Saudi-Bahraini arrangement will permit the Bahraini Government to secure 60 per cent of the crude supplies required by BAPCO. It is a measure which must be related to the Bahraini Government's objective to take over a similar share of 50 per cent in the Refinery's total equity, which is co-owned equally by two US multinational oil corporations: Standard of California and Texaco. These two corporations have been supplying 200,000 bbl/d of the Refinery's total capacity of 250,000 bbl/d. The Government's takeover of the 60-per-cent share will reduce the Company's share of feedstock to 100,000 bbl/d, a quantity which they will provide from their respective shares in the group of the Arab-American company ARAMCO.

1/ "Bahrain: Grâce à 100,000 b/j de pétrole séoudien, le gouvernement pourra fournir 60 % du brut traité par la raffinerie de la BAPCO" in: Vol. XII, No. 270, Le Pétrole et le Gaz Arabes, Paris, 16 juin 1980, pp. 13, 14 (referring to a declaration of Mr. Youssef Shirawi, Bahrain Minister of Industry and Development)

Thus the government-to-government cooperation in the crude oil sector between Bahrain and Saudi Arabia will permit the Emirate to extend its control and hold an equity majority in the oil-refining sector, thereby reducing the foreign companies' presence in this sector in Bahrain, both in the supplying of crude oil to the Refinery and its ownership as well as its commercial exportation.

The takeover by the Bahraini Government of 60 per cent shares will become effective on July 1, 1980 according to the Bahrain Minister of Industry and Development. The Government will pay Texaco and Standard of California a compensation which will be calculated on the basis of the net accounting value of BAPCO's assets.

Still, there are some suspending problems to be solved, mainly the part of the refinery output which will be marketed by the American corporations and their respective commission to which they will be entitled.

In conclusion, the partial withdrawal of foreign interests both upstream and downstream the refining sector made possible the consolidation of the Saudi support to Bahrain in the oil sector. Hence, the sector's development and future depend more and more on Saudi-Bahraini cooperation and sectoral integration.

CHAPTER 7

THE ALUMINIUM INDUSTRY

PART I : GENERALITIES

Efforts in boosting aluminium consumption were at first concentrated on developing new technologies and introducing products permitting to replace traditional structural materials by a substitute of same superior properties, i.e. substitution of copper by aluminium in electric conductores, aluminium foil and collapsible tubes for packaging to replace tin, aluminium household holloware, etc. In more recent times, a second significant factor giving further impetus to aluminium usage has entered into the picture: considerations of higher cost-effectiveness both at the producer's and consumer's end. Development work conducted with this end in view will hinge a great deal on the extent of industrialization and the general standards of economic development of a given country. ^{1/}

f. Growth of production and consumption 1935 - 1977:

As a result of effective promotion efforts world aluminium consumption has grown at an exceedingly steep rate within the last 40 years, being well ahead of that of traditional structural materials throughout this time. Its growth was especially marked over the 1960-70 period. Although after the price explosion this trend has slightly declined, in comparison to other structural materials aluminium keeps on accounting for the highest ever consumption growth rates. This unprecedented steady growth is based on a high standard of systematic research and development work throughout the world, relying, in turn, on effective co-operation between producers and consumers, irrespectively of the economic system or extent of industrialization in a given country.

^{1/} Correlation of aluminium consumption and economic development after the price explosion. Magyar Aluminium, Budapest, 1979 by Muraközi, E.

Aluminium:	World Consumption million metric tons	World Consumption Growth Indices
1935	0.3	1977/1935 50.0
1950	1.5	1970/1960 2.2
1960	4.5	1977/1960 3.3
1965	6.5	1977/1970 1.47
1970	10.2	
1975	11.3	
1976	13.1	
1977 (estimate)	15.0	

2. Production and consumption forecasts for aluminium and other structural materials until the year 2000:

The future aluminium trends indicate that the dramatic rise of aluminium world consumption over the 1960-70 period corresponding to an annual growth rate of 8-10% is to drop in the coming years to about one-half. Moreover, it seems highly probable that in the years ahead the share of developing countries in aluminium operations and consumption will grow considerably. ^{1/} Over the 1975-85 period, the aluminium production of industrial countries is expected to grow from 9.1 million tons to 19 million tons. During the same time, aluminium smelter capacities of the developing countries are to become five-fold, expanding from 800,000 tons to 4 million tons. The reality of the latter forecast seems to be confirmed by the following table:

Aluminium smelter capacities in developing countries
1960 - 2000

<u>2/</u>	<u>2/</u>	<u>1/</u>	<u>3/</u>	<u>2/</u>	<u>1/</u>	
88.6	538.2	842.0	1,104.0	1,318.0	4,000.0	12,000 - 15,000 (estimate)

- 1/ Moment, S. Long-term associations of developing countries with consumers of bauxite, alumina and aluminium. Paper presented at the UNIDO Seminar, Budapest, 3 - 12 May 1978, 6. p.
- 2/ UNIDO Workshop on case studies of aluminium smelter construction in developing countries. Vienna, 27 - 29 June 1977. Final Report ID/WG.250/18, 26 August 1977, 8.p.
- 3/ Spector, S.R. Short, medium and long-range trends in aluminium supply/demand. Paper presented at the UNIDO Seminar, Budapest, 3 - 12 May, 1978. 11.p.

It will be observed from the above that by 1985 the share of developing countries in world smelter capacities may reach 17% of total installed world smelter capacities. Under these circumstances, the target suggested at the 1975 UNIDO General Conference in Lima, that at the turn of the century developing countries should account for 25% of total world industrial production, appears to be a thoroughly fair percentage that can be reached by developing countries as far as the share in world aluminium smelter capacities is concerned.

In industrial countries, where power economy has become a crucial issue, a further upswing of aluminium may be anticipated in transport vehicle manufacture, electrical engineering, the manufacture of heat-exchangers, containers and components for the mechanical engineering industry, as well as in camping and sports items. This will be accompanied with a downward trend in the growth rate of aluminium usage in building and packaging.

In developing countries, at first electrical engineering is to make great headway in aluminium usage, with packaging for specific ends, i.e. for new fisheries, dairies and food canning facilities. Household appliances, too, will be a fast expanding outlet. At some later time also other end-uses will enter into the picture depending on the economic pattern, geographic situation and other circumstances prevailing in each country. Modern agriculture will call for up-to-date cold-storage rooms, irrigation systems, submarine desalinating facilities and building structures, all featuring aluminium. In the transport vehicle and mechanical engineering field, operations will be at first confined to assembly work followed at some later time by the manufacture of special components and products, i.e. high-standard castings. It is desirable that upon installing new fabricating capacities effective arrangements be made as to the collecting and recycling of scrap arisings, which are usually in the order of 21-26% of aluminium input.

3. The pricing of structural materials, forecasts as to future pricing trends:

The world market prices of the principal structural materials and their pricing in relation to aluminium over the 1935 - 1977 period are summed up in the following table.

Table 1

Mean world prices of some selected structural materials

/Based on annual average quotations in current prices/

U.S. \$/t

Material	1935	1950	1955	1960	1965	1970	1975	1976	1977
Aluminium ^{/1/}	482	370	500	577	545	614	860	969	1.108
Copper ^{/2/}	172	472	500	712	780	1.393	1.205	1.381	1.293
Lead	69	300	332	265	260	304	412	446	617
Zinc	68	210	273	287	320	296	745	711	589
Tin	1.090	n.a.	n.a.	n.a.	3.428	3.673	6.870	7.583	10.798
Steel billets	34	65	n.a.	n.a.	n.a.	no. 93	173	168	154
Plastics /PVC/ ^{/3/}	n.a.	n.a.	n.a.	350	351	359	642	566	619
Cement	n.a.	6	n.a.	7	8	10	20	n.a.	25

/1/ Mean price, ex smelter

/2/ Cathode copper

/3/ Mean price in Federal Republic of Germany

An analysis of the pricing trends in this table will clearly demonstrate that as from the end of the Second World War a marked shift in favour of aluminium has taken place to the detriment of copper and steel. The 1973 rise of oil prices did not significantly affect the relative pricing of metals. Fluctuations in aluminium and copper prices were largely due to market speculation.

Aluminium Price (US cents per pound)*

1960	27.23
1965	24.50
1970	28.72
1971	29.00
1972	26.45
1973	25.33
1974	34.06
1975	39.79
1976	44.34
1977	51.34

Forecasts published in the world press unanimously agree that the 1970 level of relative pricing of structural materials will persist in the long term, though in absolute terms they predict rising prices throughout the coming years. ^{1/} Such price hikes are considered to be necessary to ensure the economical operation of new capacities coming on stream, although their actual magnitude is suggested to be less than that of oil. ^{2/}

Before concluding this part a comparison of average annual pricing trends of some raw materials, sources of power and labour costs involved in aluminium and steel production are tabulated below.

^{1/} Revue d'Aluminium, Paris, No. 471:3:112. 1978.

^{2/} Dowding, M.F. The world of Metals, Metals and Materials, London, 7:27 - 37 p, 1978

* Virgin unalloyed lingot at New York

Table 2

Relative pricing of some structural materials by volume
/Aluminium mean price taken as 100/

Material	1935	1950	1955	1960	1965	1970	1975	1976	1977
Aluminium	100	100	100	100	100	100	100	100	100
Copper	35	127	100	123	143	227	140	142	117
Lead	14	81	66	45	48	50	48	46	56
Zinc	14	57	55	50	59	48	86	73	53
Tin	226	-	-	-	629	598	799	782	975
Steel billet	7	17	-	-	-	15	20	17	14
Plastics	-	-	-	61	64	57	76	58	54
Cement	-	2	-	1.2	1.5	1.6	2.3	-	2.2

4. Suitability of aluminium from a technological and financial point of view for new applications and to replace other structural materials:

Any effort of replacing a structural material by an other is aimed to take utmost advantage of the latter's most useful properties. In assessing such prospective benefits in respect of a given country or area - next to the availability of raw material and power on site - the following circumstances have to be taken into account:

- Economic structure and the distribution pattern of capital. Prevalence of many independent small and medium-sized enterprises; industry and agriculture controlled by large concerns or public corporations;
- The volume of experience of local manpower;
- The pattern of the domestic market, and how far the latter may be influenced by intervention on the part of government agencies.

Applying these considerations to aluminium, a combination of favourable and detrimental factors emerge, which may be dealt with in detail in the case of Bahrain in the following pages.

5. Difficulties:

5.1. Large amount of power and capital involved in primary aluminium production:

The two basic considerations in installing an aluminium smelter are abundance of cheap power and the availability of large capital, the latter far exceeding that required for setting up other raw material production facilities. Bauxite and alumina operations on site or in the region are not an absolute prerequisite, alumina lending itself well for transport over larger distances.

Until the 1960's, generally, only developed countries and centrally planned economies could afford to erect aluminium smelters. This is the reason why the bulk of such facilities are located in Europe, North America and the Soviet Union, where large amounts of hydroelectric and thermal power are available. In earlier days, the proximity of the consumer markets, too, had been a consideration of some portent.

The siting of new smelter projects is nowadays almost exclusively governed by the high power demand of smelting operations. The power resources of developed countries have no longer free capacities to supply abundant amounts of cheap energy. Hence, in siting a new smelter, only such areas may come into consideration, where a sufficiently large potential of cheap power, too, exists. The tapping of new power resources, however, invariably calls for further capital investment in implementing such projects. It should be remembered in this connexion that electric energy is at present the largest and most significant cost factor in the electrolytic extraction of aluminium.

The magnitude of power involved in aluminium production is demonstrated in the following table, where a comparison of power consumed at each successive step of production from the raw material up to the semi-fabricating stage is presented in respect of steel, copper and aluminium. ^{1/}

The table shows that the huge energy demand of aluminium production stands out most strikingly. The difference will remain even after allowance has been made both for the lower specific weight of aluminium and the fact that by adding suitable alloys a composition may be brought about, whose mechanical properties approximate those of mild steel. In calculating this, the power demand of aluminium will be no longer eight times, but only 2.7 - 3 times that of steel. By the same reasoning, power involved in the manufacture of copper and aluminium conductors will be practically identical after allowance has been made for the difference in specific weights.

^{1/} Osztrovszky, G. Raw material situation of the Hungarian national economy with special regard to the chemical, alumina and aluminium industry. Paper presented at the Hungarian Academy of Science, Magyar Aluminium, Budapest, 15:10:289-299, 1978.

Table 3

Breakup and total of energy consumption involved
in steel, copper and aluminium production ^{1/}

GJ per ton

	Steel rounds 30 mm. dia.	Rolled copper wire	Aluminium sheet
Mining, quarrying	?	51.9	4.2
Coking	20.1	-	-
Concentration	5.9	-	-
Crushing	-	20.9	5.9
Flotation	-	7.5	-
Alumina manufacture	-	-	41.9
Smelting	0.3	14.2	218.6
Steel manufacture	6.6	-	-
Electrolytic refining	-	12.6	-
Rolling	5.4	18.4	28.1
Total GJ/ton	37.7	125.5	293.7
Total GJ/cu.m.	293.1	1,130.0	795.6

5.2. Higher standards of engineering techniques:

The chemical, physical and mechanical properties of aluminium differ in many ways from those of other metals. In view of this, the handling and processing of aluminium calls for technologies which may often be regarded as a departure from conventional methods of metallurgy. Even the transport and storage of aluminium require particular care. In case of defective packaging, rough handling en route or poor storage, the vapour repeatedly precipitating and evaporating on its surface may leave behind ugly stains or give rise to corrosion.

^{1/} Alexander, W.O. Economics of Energy and Materials. Material Science Engineering. London, 29:195-203, 1978.

6. CAPITAL REQUIREMENTS

The investment costs necessary to achieve an annual ton of production capacity are shown below:^{2/}

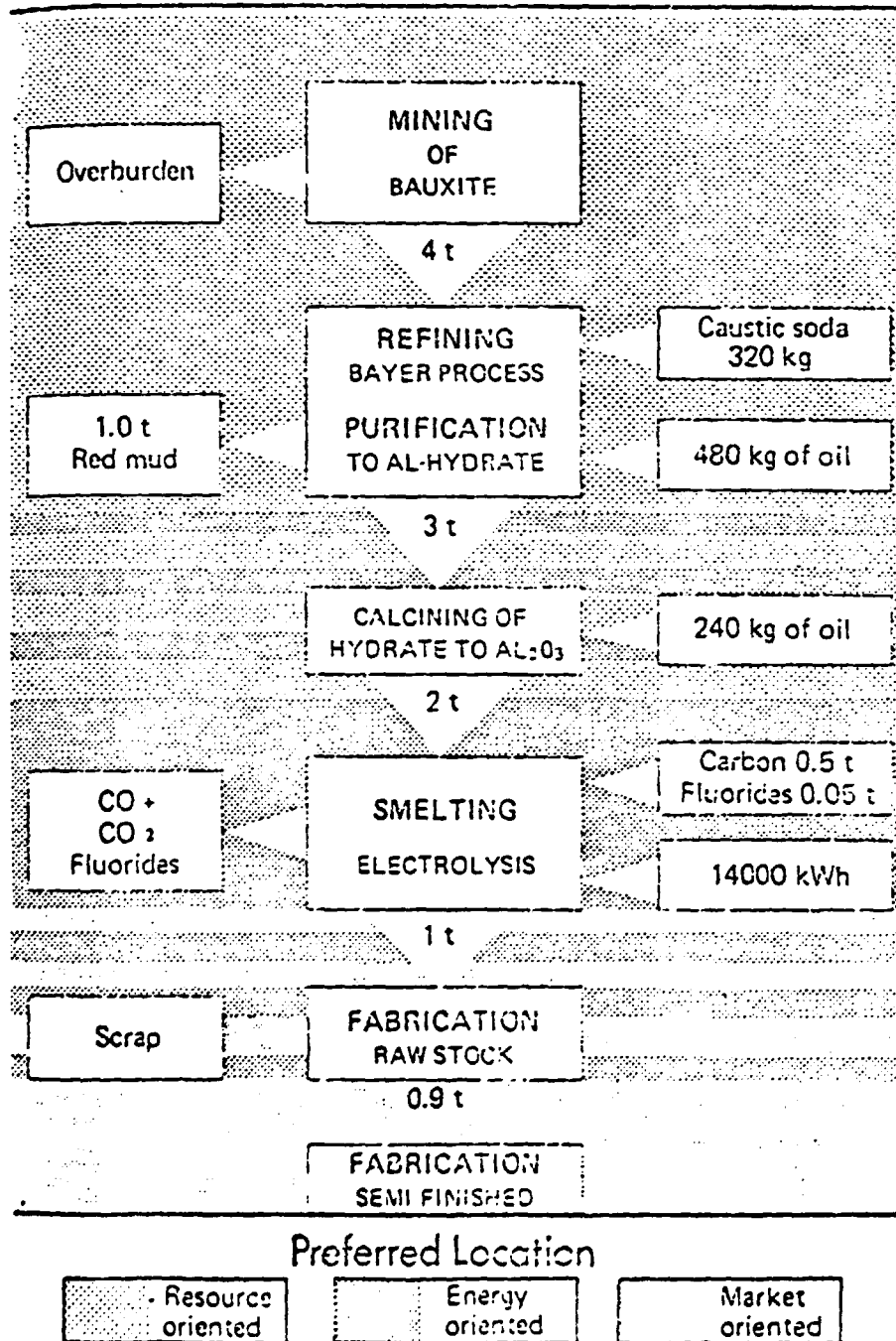
	Iron	Aluminium
Mining and Raw Materials Preparation	50	700
Power Generation	-	400
Smelting	250	2000
Fabrication	200	400
Total	500	3500

In most cases, power consumption accounts for 20 - 30 per cent of direct costs in smelting. When the plant was put on stream in 1971, the energy costs were estimated at only 4 per cent of the total production cost in Bahrain. In comparison, the energy costs in Great Britain were 54 per cent of the total production costs at that time. This can be explained by the underpricing of the Bahraini gas used for the smelter. To run a smelter, Bahrain had to provide it with 100 million cu. ft. of natural gas per day.

^{2/} Fischer, P.U.: "The role of the Gulf in the future development of the world aluminium industry", Bahrain Society of Engineers, London, 1977, Graham and Trotman Ltd..(a seminar on engineering and development in the Gulf, Bahrain Society of Engineers).

Table 4

LOGISTIC STRUCTURE OF ALUMINIUM INDUSTRY



The above shows not only a schematic flow sheet of the industry, but gives also an indication of the geographical factors the industry is subject to.

The first field, which is resource oriented, contains the operations which are usually done close to the bauxite mine. The relatively large quantities of thermal energy required in the Bayer process, sometimes have led to locations close to availability of cheap fuel.

Bauxite is a lateritic mineral found in subtropical and tropical areas. It is very abundant in N- and NW Australia, Indonesia, India, Western Africa, Brazil (Amazon river basin), the Caribbean and Guyana. Consequently, some of the largest Bayer process refineries are found in these countries.

The second field is energy oriented. This means that the operation takes place at the locality where we find cheap electric power. It means also that the input materials (alumina and carbon mostly) have to travel over thousands of miles in bulk carriers to such places.

Traditionally, localities with cheap power meant hydropower and thus, smelters became located in Alpine valleys, Norway, Canada, the Pacific, NW of the United States, etc.

With the increasing depletion of hydro-power resources in Europe and the US and the increase in cost for additional hydro-power development in other areas, alternative energy bases have become attractive for aluminium smelting for some time. We shall refer to this later.

Under certain conditions, a variation to the traditional geographic separation of bauxite refining and smelting could become feasible: instead of transporting all the oil to the refinery for the complete process, the last step, i.e. the calcination of the hydrate which requires temperatures of 1200°C and consumes 120 kg of oil per ton of alumina or 240 kg of oil

per ton of metal, could be done at the source of oil (or gas) provided that there is a smelter there using the same energy. For this reason, we have shown an overlap of areas 1 and 2.

The third field is market oriented and the operation requires a certain degree of flexibility to cope with customers requirements.

Close liaison between manufacturer and customer is therefore essential. Some products - e.g. those with decorative surfaces for the building industry - have to be carefully packed and should not travel over long distances. For these reasons, the operation is usually carried out in areas close to the markets. Manufacturing of such goods involves hot and cold rolling, extruding, stretching and drawing.

Naturally, such processes use most economically liquid metal directly from the smelter and are therefore carried out close by.

7. The Significance of Energy for the Aluminium Industry

The development of cheap hydropower in the past has helped the world aluminium industry to grow to the importance it has reached today.

With the depletion of favourable development potential for hydropower in Europe and the United States, other energy sources have come into use.

The aluminium industry will always have to use power at the lower end of the price range, which means that it will be in areas where additional hydropower resources and thermal power are being developed.

It follows that - parallel to the countries in S-E Asia, Africa and S-America, disposing of potential hydropower - the Gulf states are attractive sites for aluminium smelting from the standpoint of thermal energy.

PART II : LOCAL CONDITIONS IN THE GULF

Let us now look at the resources of the Gulf and see how they compare with the criteria we have listed at the beginning.

An evaluation should allow us to spell out which steps in the aluminium industry appear to be attractive for this area. If we list once more the criteria earlier mentioned, we can obtain the following diagram:

CRITERIA AND LOCAL CONDITIONS REGARDING ALUMINIUM INDUSTRY

	1	2	3
Raw materials		X	X
Energy	X		
Labour	X	X	X
Capital	X		
Services	X	X	
Information			X
Market			X

1 good, yes

2 medium, maybe

3 bad, no

One can see that for the Gulf States only two criteria are distinctly absent: information and market. All the other elements are either distinctly or conditionally present.

A look at the world aluminium industry shows that in very few cases alumina plants and smelters are close to markets. In the majority of cases, the alumina as well as the metal have to be transported. For the only other distinctly absent element, information, there is no real problem, as this can be bought.

By weighing the criteria against the specific requirements of each manufacturing step in the aluminium industry, it is possible to set up the following priorities of operations, which local conditions favour:

- 1 Smelting
- 2 Preparation of raw materials
- 3 Fabrication (primarily for local use).

1. Raw Materials

Local deposits of minerals yielding alumina are very uncertain. Bauxites of not particularly attractive composition are known to exist in Iran. It is conceivable that clays may be found which can be extracted in the future, when alternative processes to the Bayer process may be feasible. (The US Bureau of Mines is running a pilot plant operation using a nitric process, sponsored by a group of primary producers). It appears to be uncertain that in the foreseeable future the Gulf area will become a producer of aluminous raw materials. However, the question arises whether all or at least some steps of the refining process leading from bauxite to alumina could not be carried out in the Gulf, and whether it would not pay to bring bauxite into the Gulf in large bulk carriers or bulk-oil carriers (BOCs) to be processed in Bahrain. This would require, however, two conditions to be met:

1. there must be ample water supply available for processing and washing purposes;
2. the bauxite-producing countries all tend to install their own refineries in order to upgrade their exports; therefore, a stable supply of bauxite on a long-term basis must be assured.

In the Bayer process, also approximately 320 kg of caustic soda are required to produce 2 tons of alumina or 1 ton of metal. Actual consumption varies with the type of bauxite being treated. Caustic soda is produced by electrolysis of sodium chloride (salt), in the course of which an equivalent amount of chlorine is also produced. Salt is plentiful, power is potentially plentiful, and chlorine as a by-product can be used in the petrochemical industry.

Caustic-soda manufacturing can, therefore, naturally follow the establishment of a Bayer plant.

PART III: BAHRAIN ALUMINIUM INDUSTRY

1. Conditions

Bahrain has several assets which made the establishment of an aluminium industry attractive.

1.1. The very establishment of the aluminium smelter in the Emirates shows that, thanks to cheaply-priced gas, Bahrain was a good alternative at the beginning of the 1970s for several multinational aluminium corporations ^{1/}, compared with areas of undeveloped hydropower potential. Furthermore, the process of rectifying the crude oil prices, starting at the end of the 1950s, then going on in 1971, and mostly since 1973, has gradually stimulated a similar process of gas price increase which, in recent years, has accelerated in connection with the emergence of new world-scale networks of gas liquefaction, transportation and marketing. Consequently, the economic advantage of establishing an aluminium industry in Bahrain and in other associated-gas-producing countries has grown increasingly. This is an area where one can observe and explain the new trends of project transfers to selected developing countries in relation to the change of cost structure in the developed industrialized countries.

1.2. Another important factor in the selection of Bahrain for the establishment of one of the new aluminium smelters in the oil and gas producing countries seems to have been the labour costs, which are low compared with those in the developed countries, and a favourable legislation.

^{1/} Those corporations were:

- 2 American multinationals: - General Cable Corporation
- Britain Investment
- 2 U.K. " - British Metal Corporation
- Western Metals Corporation
- and the Swedish Electro Coppa Corporation.

See: EL-ZALM, Issam: "The Equity structure in the Aluminium Bahrain Corporation", p. 135

Aluminium Bahrain (Alba) produced 122,820 tons of finished metal products in 1978, compared with 121,356 tons in 1977 (MEED 27:1:78);. Hot metal production was 123,010 tons. Alba's general manager GUDVIN TOPPE said future development would be slower: the workforce had been reduced by 450 in 1978, and 250 more jobs might be lost this year. ^{1/}

There has been a certain criticism of the working conditions in the Alba smelter, particularly during the first years after the plant had been put on stream. The number of labour accidents was estimated to be higher than the corresponding rates in the European and American aluminium industries. Between October 1972 and November 1973 there have been a few mortal accidents and more than 100 injuring accidents, which led to labour strike. ^{2/}

On November 19, 1973 the Alba workers wrote a letter to the competent authorities after a mortal accident, as follows: "All the furnaces as well as the smelter lack security equipment. None of the workers and engineers had been trained nor had they followed occasional courses; they had only some knowledge of the various tasks and the handling of instruments and machines." ^{2/}

Aluminium Bahrain started production by employing semi-skilled immigrants as metal workers through foreign contractors. Later the government, following requests from local workers pushed the Bahrainization of the Alba staff. In 1978, according to government sources, workers from the Far East were still employed, while Bahrainis were being laid off. ^{3/} Consequently, contractors "hiring" semi-skilled immigrants were asked to send them home.

1/ MEED - Middle East Economic Digest, Vol. 23, No. 5, Feb. 1979, p. 15

2/ AL-DOWADI, Ahmed: "Multinational Corporations in the Arab Gulf". in: Al-Talish, monthly, Cairo, p. 95, reproducing the Bahraini weekly Sada Al-Usbooh

3/ Declaration made by the Bahraini Director of Labour, Mr. Khalifah Khalifah, to the Bahraini-based Gulf Weekly Mirror, in: MEED - Middle East Economic Digest, Vol. 22, No. 23, London, June 9, 1978

1.3. The geographic position is a third advantage for the aluminium industry in Bahrain, particularly in the Gulf area. On the one hand, industry in the Gulf can be supplied with alumina from the Australian mines. But since Bahrain represents a small market, its aluminum industry has to be export-oriented. As transportation costs are very low, the aluminium products can be directed either to Japan or to Western Europe. This is typically an industry founded on exploitation of local energy resources and attractive investment conditions.

1.4. Aluminium industry is capital-intensive. As a rule, new capital-intensive projects are established in oil-producing countries with oil capital "surplus" and largely, if not mostly, financed by local interests, generally the public sector.

The aluminium industry is particularly energy-intensive. Total energy consumption for the preparation of one ton of metal out of ore is 16,000 kilowatts for aluminium, compared with 3,500 kilowatts for steel. ^{1/}

However, while Bahrain disposes of associate and natural gas, its oil sector does not generate a surplus; this explains the small stake (19%) taken by the Bahraini government in the Aluminium-Bahrain joint venture (Alba). Therefore, foreign partners made the major financial contributions.

^{1/} This is due to the higher activity of the aluminium as compared to other metals, i.e. its resistance to the separation of its oxide. One has to turn to electrolysis and use electric energy to extract the metal from its solution. But in addition to the equipment required for the process in a smelter, the industry is capital-intensive, because it has a substantial problem of handling materials, as can be seen in the overall-flow sheet of the process which is given on page 5.

Alba's Equity Shares

<u>Equity held by</u>	<u>Nation-based</u>	<u>Percentage</u>	
a) 2 US corporations:			
General Cable Corp.	USA	17	
Britain Investment	USA	9.5	
	subtotal	-	26.5
b) 2 U.K. corporations:			
British Metal Corp.	U.K.	17	
Western Metals Corp.	U.K.	3.5	
	subtotal		25.5
c) KAISER Aluminium		17	17
d) a Swedish corporation:			
Electro-Coppa	Sweden	12	12
	Total Foreign Interests		<u>81.5</u>
	Local Interests (Bahrain Govt.)		19.5

2. The smelter was inaugurated in May 1971. The cost of the project was 73 million pounds. In 1972 it produced 120,000 tons of pure aluminium, but it was planned to raise this annual capacity up to 400,000 t/year within five years. However, the world aluminium market and some start-up difficulties have not permitted to achieve this goal.

Aluminium Bahrain signed a contract in 1971 with Chemical Corporation of Australia. Under this contract Aluminium Bahrain was supplied with Australian alumina. At that time the Iranian Aluminium Corporation considered the possibility of replacing the Australian corporation in supplying the Bahrain smelter with the necessary feedstock. While this would represent a major transportation advantage, local deposits of mineral-yielding alumina are very uncertain, and deposits known to exist in Iran are not of particularly attractive composition.

3. THE ALUMINIUM EXTRUSION INDUSTRY

Bahrain Aluminium Extrusion Company (BAEC) is a 100 per cent Bahrain Government owned company formed by Amiri Decree in 1977. It is operating an aluminium extrusion plant with an annual output of approximately 4,000 tons. It employs approximately 200 workers and has the reputation of being one of the highest quality extruders in the Middle East. The plant was designed and built by Swiss Aluminium Ltd. of Zurich and is currently being operated under an Operation and Assistance Agreement with Swiss Aluminium Ltd.

The plant has a 2,000 ton Schloemann press and a 33,000 Amp anodising line supplied by Turner Engineering Co. Ltd. of the United States. The company is currently expanding its anodising capacity by a further 11,000 Amps. The plant produces a full range of both mill finish and anodised sections including gold, black, and bronze to the Alusuisse Colinal^R process. Products include brushed and matt finishes. Its markets are all over the Gulf States, including Kuwait, Saudi Arabia, Qatar, the U.A.E. Oman and Bahrain. The Company is currently expanding its outlets to include the United Kingdom, Syria and Jordan. ^{1/}

^{1/} D. PEDEM (General Manager), Bahrain Aluminium Extrusion Company,
May 1980

Both aluminium production and export have been growing over the years 1971-1977 ^{1/}.

3.1. The volume of production ^{2/} had been boosted between 1971 and 1974. Later, from 1974 to 1977, production slightly fluctuated at the plant's normative capacity. Meanwhile, production and export values boosted between 1971 and 1974, stabilized in the following year, and increased again in the years 1976 and 1977.

3.2. The volume of exports boosted between 1971 and 1973, almost stagnated in 1973 and 1974, and dropped in 1975 before attaining the plant's normative level in 1975 and 1976.

At the same time, the value of exports ^{3/} boosted between 1971, the first year of the period considered, and 1974, stagnated in the following year, and rose then constantly to higher levels in 1976 and 1977.

As a result, aluminium exports multiplied by 30 in value between 1971 and 1977. This was a result of the set-up and full utilization of the new aluminium capacity in the first place as well as to a multiplication of more than 1.5 of the unit value per ton of aluminium. This is shown in the following table:

^{1/} The aluminium smelter began production in April 1971.

^{2/} Calculated in metric tons.

^{3/} Estimated in millions of Bahraini dinars.

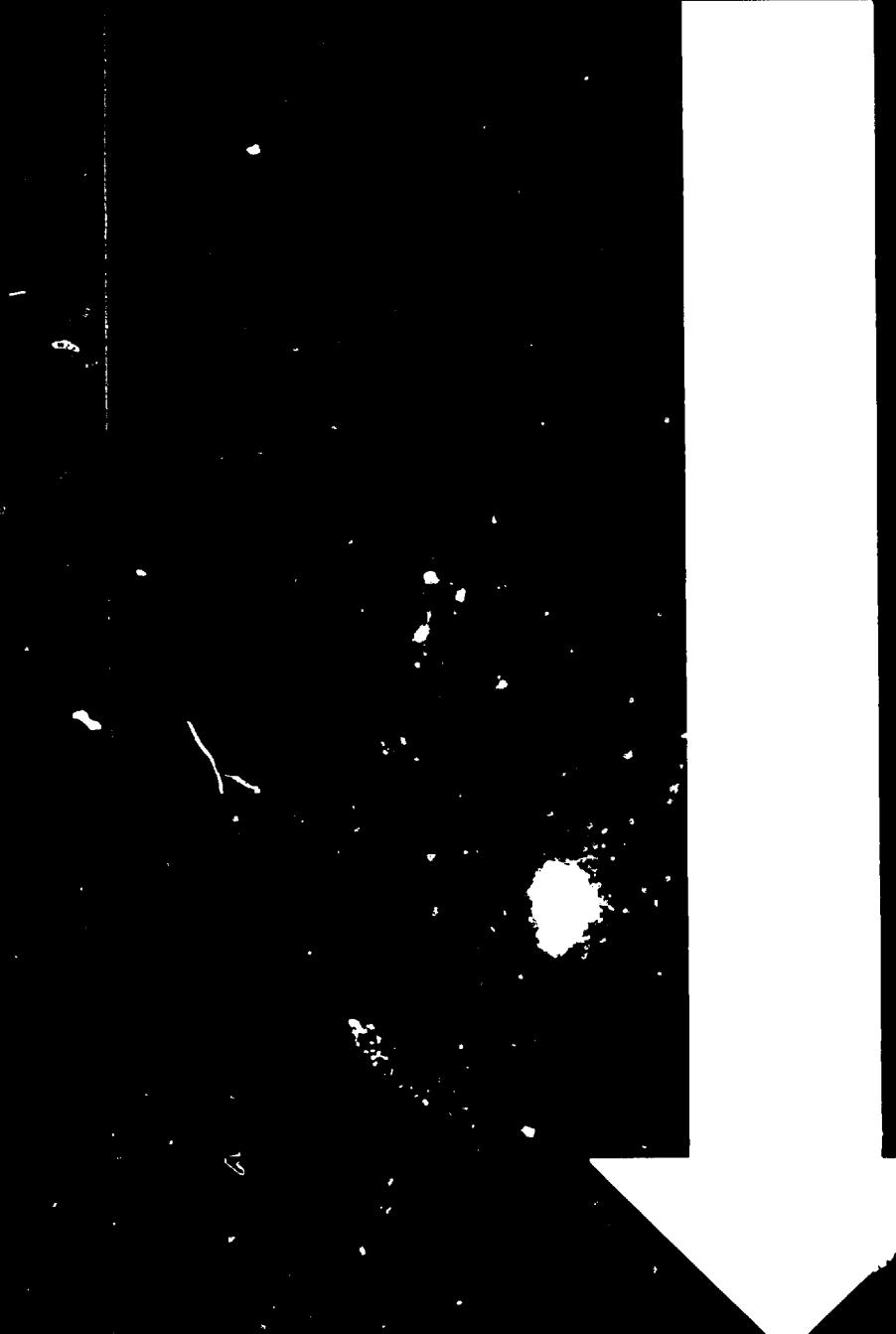
Table 5 : Aluminum Production and Exports
 (Volume in metric tons and value in millions of Bahrain dinars)

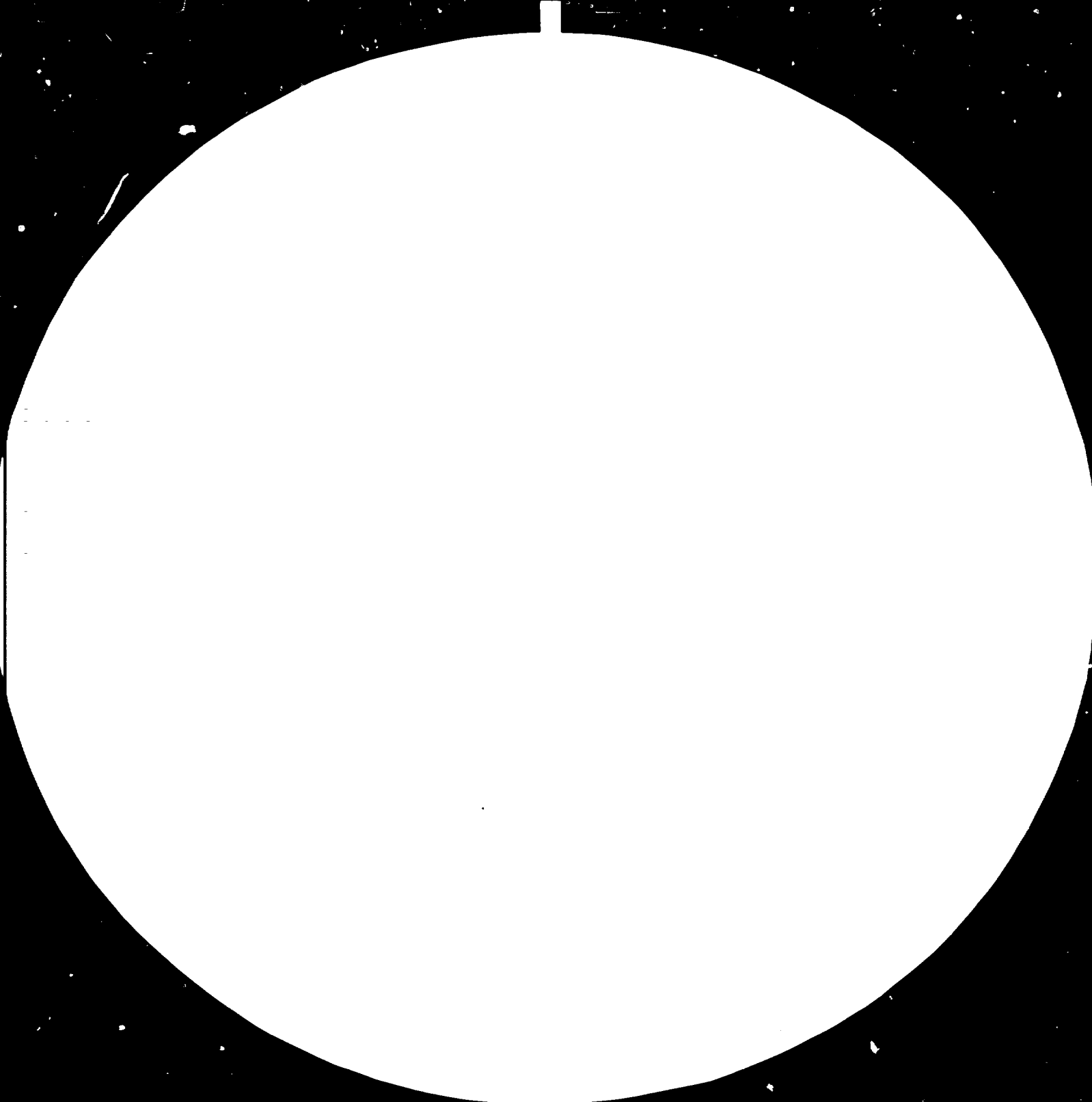
	Production			Exports		
	Volume	Value	Unit value per ton	Volume	Value	Unit value per ton
1971 <u>1/</u>	8,133	2.04	250.8	6,619	1.66	250.8
1972	70,103	15.97	227.8	57,899	13.13	226.8
1973	102,630	28.75	280.1	96,959	26.56	273.9
1974	117,961	38.85	329.3	97,849	31.47	321.6
1975	116,500	38.87	333.6	90,088	31.10	345.2
1976	122,058	44.86	367.5	120,457	44.28	367.6
1977	121,356	48.54	400.0	122,894	49.16	400.0

Source: Ministry of Industry and Development

1/ The smelter began production in April 1971.

810616







Wavelengths are given in micrometers (μm) and millimeters (mm).
Resolution is given in cycles per millimeter (cycles/mm).

1. Alba move for extra financing^{1/}

Additional finance for Aluminium Bahrain's (Alba's) planned expansion is to be raised by offering shareholders a further 1 million shares, with a nominal value of BD 1 (2.6), at BD 6 (\$ 15.8) each. The company needs \$ 120 million, of which \$ 70 million have been raised in a loan from banks led by Gulf International Bank and National Westminster Bank Limited.^{2/}

The shares are to be paid for in three instalments - due in June, November and May.

1.1. Saudis enter the ALBA joint venture

A 20 per cent stake in Alba's original 3 million shares has been taken up by Saudi Basic Industries Corporation (SABIC)^{3/}. The shareholding is now: Bahrain - 57.9 per cent, SABIC - 20 per cent, Kaiser Aluminium Bahrain - 17 per cent and Beton Investments of West Germany - 5.1 per cent.

1/ MEED - Middle East Economic Survey, Vol. 23, No. 30, London, 27 July 1979, p. 19

2/ MEED, London, 15 June 1979

3/ MEED, London, 18 May 1979

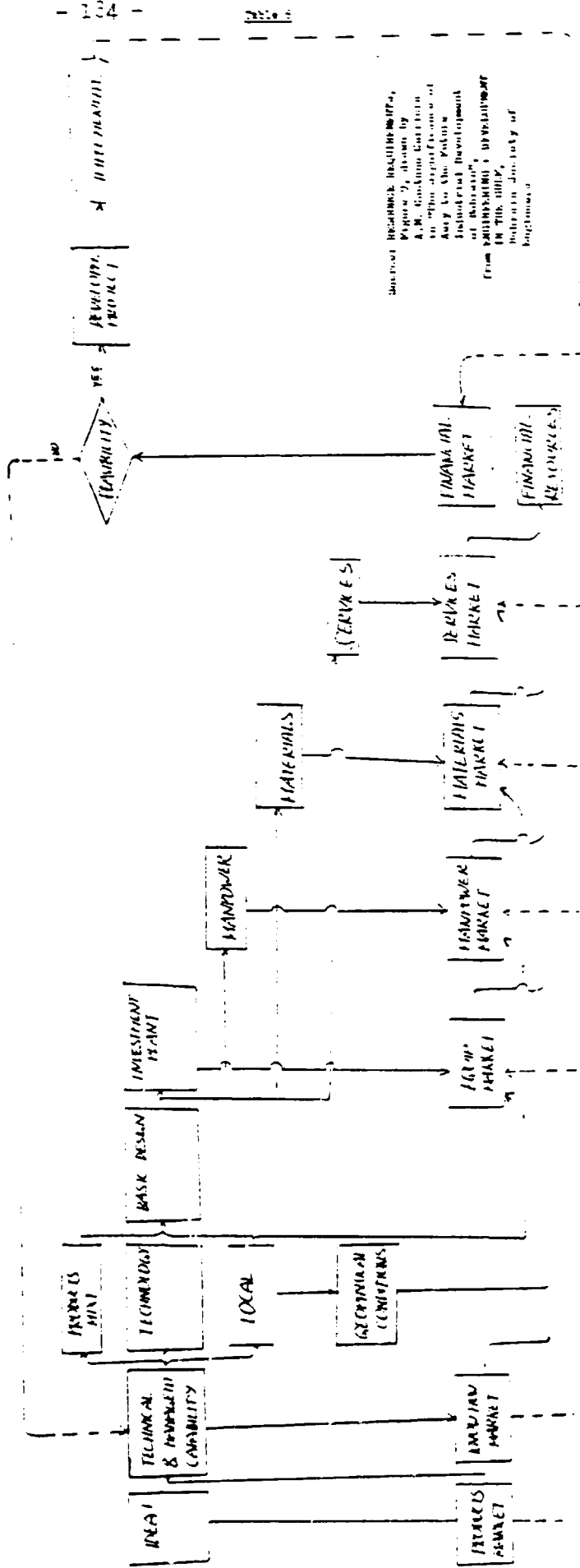
4.2. SAUDIS ABANDON THEIR JUBAIL ALUMINIUM PROJECT

The entry of the Saudi state-controlled company SABIC in ALBA's joint venture by taking 20 per cent equity has been of help to the Bahraini Government in its substitution of multi-nationals withdrawing. Furthermore, this regionalization of the enterprise has recently led Saudi Arabia to abandon its own project of setting up an aluminium smelter in Jubail (Saudi Arabia).

At the end of May 1980, Dr. Gusaibi, Minister of Industry and Electricity, announced that Saudi Arabia had abandoned the project for the construction of an aluminium smelter in Jubail in view of the fact that the smelters in Bahrain and Dubai are being expanded, to prevent duplication in Gulf industrial projects and to streamline and co-ordinate industrialization in the Gulf Arab countries. ^{1/} Kuwait has already abandoned the idea of setting up an aluminium smelter in Bahrain a few years ago. As a result, ALUMINIUM BAHRAIN will not face any Kuwaiti or Saudi competition.

^{1/} "Gulf Petrochemicals Plants", in: Saudi Economic Survey, Jeddah, Vol. XIV, No. 563, page 6, 4 June 1980

RESOURCE REQUIREMENTS



Source: Resource Requirements, Figure 7, drawn by A.W. Goshing, Director of the Department of Industry to the Public Industrial Development Corporation, Government of India, in the July, 1964, Journal of Development Economics.

CHAPTER 3

THE SHIPYARD FACILITIES
(SHIP REPAIRING)

There are three important repairing facilities in Bahrain^{1/}.

The oldest is the Bahrain Shipway Company, a subsidiary of Gray Mackenzie, which operates coastal shipping traffic in the Gulf. Its business has been very buoyant and in 1975 its employment peaked at 500 persons. Bahrain Shipway has been forbidden by the Government to expand or to accept ships of more than 11 feet 9 inches draft until the Bahrain Ship Repairing and Engineering Company (BASREC) is 20 years old.

BASREC was established in 1970 near the port of Mina Sulman. It has the advantage of deep water jetties. Both companies have equivalent facilities and will take ships on the shipway up to approximately 1,000 tons displacement and 250 feet length. Employment is shown in the following table.

The two companies have serviced ships from all over the southern Gulf but recently they have felt increasing competition. For instance, there is now a shipway in Ajman (U.A.E.) so that few ships now come to Bahrain from the U.A.E. Employment totalled about 300, and it has been sustained at this level by sending crews to work at the drydock at the Arab Shipping and Repair Yard (ASRY). Once ASRY has trained its own labour force this work will fade away.

Table 1: Gross Sales and Capital of Bahrain Ship Repairing and Engineering Company

Year	Employees	Gross sales	Total capital employed
(Bahrain dinars)			
1972	345	1,287,419	1,429,283
1973	347	1,787,577	1,746,901
1974	344	2,073,740	2,128,861
1975	425	2,378,485	2,790,279
1976	481	3,805,730	3,635,337
1977	400 ^{2/}	4,000,000 ^{3/}	4,963,313 ^{3/}

1/ World Bank: Bahrain Current Economic Position and Prospects, Washington, June 28, 1978. World Bank, Report No. 2058-8H, Annex A, page 3, and Table 1.

Source: Bahrain Ship Repairing and Engineering Company, Bahrain

2/ At February 1978.

3/ Company's estimate.

Table 2 : Gross Sales and Capital of
Bahrain Ship Repairing and Engineering Company ^{1/}

Year	Employees	Gross sales (Bahrain dinars)	Total capital employed
1972	354	1,287,419	1,429,293
1973	347	1,737,577	1,746,901
1974	344	2,073,740	2,128,861
1975	425	2,878,485	2,790,279
1976	481	3,305,730	3,635,337
1977	400 ^{1/}	4,000,000 ^{2/}	4,963,315 ^{2/}

Source: Bahrain Ship Repairing and Engineering Company, Bahrain

^{1/} At February 1978.

^{2/} Company's estimate.

^{1/} World Bank: Bahrain Current Economic Position and Prospects, Washington, June 28, 1978, World Bank Report No. 2053-BH,

1. THE SHIP REPAIRING YARD ASRY

The starting configuration of the shipyard is a drydock able to accommodate tankers up to 500,000 dwt.

It is designed to be a modern and large shipyard, based upon a solid technical and economical analysis and every care has been taken in order to allow it to expand harmonically, should the opportunity arise.

The main purpose is to promote the social, technical and economical development of the region, but it must be emphasized that the company established to implement the idea is a commercial venture, to be run at a profit

Bahrain has long been an essential ship repair centre, providing facilities for offshore supply vessels operating in the Gulf, and acting as a shore base for repairs afloat on larger cargo ships and tankers.

Experts believe that the specialized marine repair services already offered by existing companies like B&SREC and Bahrain shipway will provide back-up to ASRY services, and that the State of Bahrain will soon be in a position to supply comprehensive repair services to a wide cross-section of shipping. Moreover, the continuing growth of new repair facilities within the Gulf should result in pricing competitive with that of Europe and the Far East.

The rapid development of Bahrain's infrastructure, combined with the country's industrial and commercial expansion, has given ASRY an added advantage. Bahrain's international airport, which is central to five continents, is situated just ten minutes the shipyard. It is therefore, according to an article published in Oil Progress, the magazine of the Caltex Petroleum Corporation^{1/}, particularly advantageous to ASRY for the import both of specialist personnel and spare parts".

This could be plausible in the short run, but in the long run commercial and social profitability of ASRY will depend on the availability within the Gulf area of both qualified personnel and regional local self-supporting machine tool industries to produce spare parts for the several dry docks in the area. It is at this price that the formation of ASRY will become a giant stride towards further industrialization for the Arab States joined in the project: Bahrain, Saudi Arabia, the United Arab Emirates, Qatar, Kuwait, Iraq and Libya.

For Bahrain particularly, it augurs an even brighter and more prosperous future. In the 1930 s, Bahrain's future was in the development of its newly discovered but limited oilfields. In the coming decade, ASRY's prospects may prove as promising.

^{1/}"ASRY: a New Haven for Tankers". In: Lifestream of OIL PROGRESS, Vol. 28, No.2. CALTEK Petroleum Corporation, Bahrain, 1978, pp.2-9.

1.1. HISTORICAL DATA

The Arab Shipbuilding and Repair Yard (ASRY), a major pan-Arab enterprise, provides expert repair and clearing services for a growing number of the Very Large Crude Carriers (VLCC's) that regularly visit Gulf waters.

ASRY as a company was formally incorporated in Bahrain in 1971. It is under the joint sponsorship of the Organization of Arab Oil Exporting Countries (OAPEC) that this first pan-Arab industry-related infrastructural venture was brought to fruition. Agreement to start construction of the super tanker dry dock was reached by OAPEC in 1974, but the history of ASRY goes back to 1965 when the three founder members of OAPEC - Saudi Arabia, Libya and Kuwait - first envisioned a major marine repair and service facility in the very centre of the international oil trade.

A comprehensive preliminary study undertaken then confirmed the need for such a major facility in the Gulf area and helped establish Bahrain as a feasible site.

The closure of the Suez Canal (1967) stimulated the building of new and countless VLCCs. The Organization of Arab Petroleum Exporting Countries (OAPEC) shortly after its establishment (9 January 1968) realized that there was a shortage of dry docks for VLCCs as the existing repairing and maintenance dry docks were located in the oil deloading ports. A feasibility study was drawn for the construction of a dry dock for the repairing and maintenance of VLCCs in the Arab Gulf area. The study showed that the dry docks prevailing in the world were located in the Far East, far from the tanker lines going from the Arab Gulf to the West. Consequently, the Council of the OAPEC took the decision in June 1970 to implement another study in order to determine the most appropriate site for a dry dock in the Arab Gulf.

In the light of that decision the ports of several Arab Gulf states were surveyed in order to identify and weigh the required specifications regarding the location, labour availability, water depth and the load ports for VLCCs. Finally, agreement was reached to implement the dry dock in Bahrain being economically the most suitable site. The study was approved in March 1972 by OAPEC's Council of Ministers. A further detailed study came with the conclusion that the dry dock should be designed to service tankers up to 500,000 dwt, and was later approved.

When the Suez Canal closed in 1967, the only alternative ship route for transporting Arabian Gulf oil to markets in the West was by way of the Cape of Good Hope, requiring the use of VLCC's (Very Large Crude Carriers). Of minimum 175,000 dwt capacity, these ships were so large that few existing dry docks could accommodate them. On the main oil routes between Europe and the Gulf, the nearest dry dock was at Lisbon; for tankers on the run to Japan, the nearest was at Singapore. The Gulf was at the centre of VLCC trading routes. With a fleet of 800 such ships afloat, it is estimated that annually between four and five thousand voyages should / ^{have been} made to the Gulf by VLCC's - the highest incidence of specific traffic for any class of vessel in the world.

Further, since most VLCC's would be arriving in the area on return voyages empty and virtually "clean", they would be in condition to enter a ship repair yard much more quickly than if they had just finished discharging cargo.

1.2. Anatomy of the Project

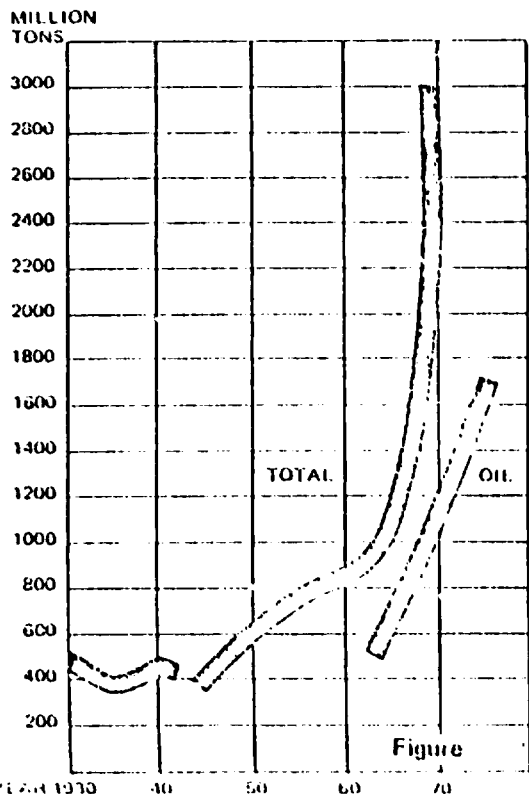
A further factor established was that a major ship repair yard in the area was considered essential for meeting the increasing demands of the Arab tanker fleet, which was expected to reach a total capacity of around ten million dwt in 1977. The site that stood was Bahrain; it was centrally located.

Although the shipping picture has changed since OAPEC chose Bahrain as the site of its dock - VLCC's passing through the Gulf now, for example, have several facilities en route from which to choose - ASRY maintains that its Bahrain yard occupies the best position of all. "Its equipment is among the best available in the world, and the location of ASRY roughly half way down the Gulf, is superb" asserts ASRY's General Manager Machado Lopez.

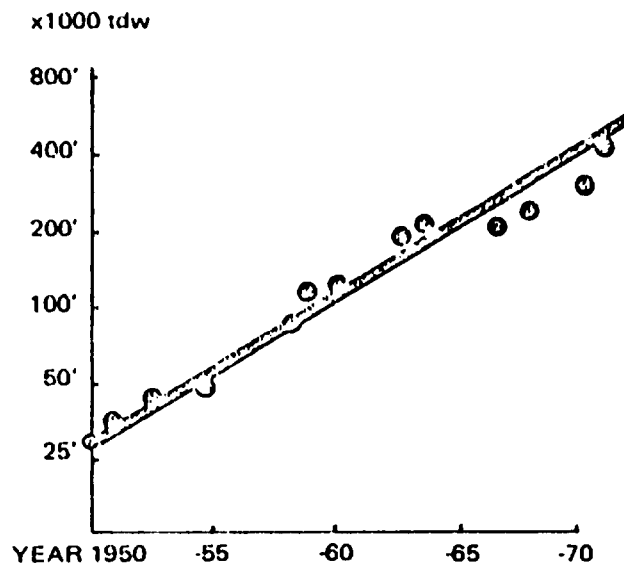
On December 2, 1973 a decision for the establishment of "The Arab Ship Repairing and Building Company" was reached. The agreement was signed during the meeting of OAPEC ministers held on November 30, 1974 in Bahrain. In 1974, 7 member states of OAPEC concluded an agreement with the Portuguese company "LISNAVE" for the design, organization and management of a dry dock on its behalf.

The Arab Shipbuilding and Repair Yard (ASRY) came into operation by servicing its first client, an Italian tanker of 231,000 dwt.

SEABOURNE WORLD TRADE
DURING THE LAST HALF CENTURY



SIZE OF TANKERS UNDER ORDER AT THE
SHIPYARDS OF THE WORLD



In concept, design, construction and equipment, ASRY is indeed a giant industrial operation. An artificial island was constructed in deep water and connected to the mainland by a causeway 7 kilometers in length.

The project is sponsored by CAPEC, and seven Arab countries are co-operating to build it.

The company, named ASRY - Arab Shipbuilding and Repair Yard Company, has certain particular characteristics, having been created by means of an inter-Arab regional agreement among seven CAPEC members. A number of public administrative procedures are therefore to be followed in its management, however private enterprise flexibility and quick reaction to any environment or market change are simultaneously requested. ASRY is thus a rare combination of seven states shareholding with a free enterprise management. The concept has been working well till now and it will hopefully continue to be so in the future.

The total cost of the project has been financed by equity capital and amounts to US \$ 340 million - \$ 290 million for fixed costs and \$ 50 million for working capital and to finance the first year's losses.

Shareholders are the Governments of:

Bahrain	18.34%
Saudi Arabia	18.34%
Kuwait	18.34%
U.A.E.	18.34%
Qatar	18.34%
Iraq	4.70%
Libya	1.10%

ASRY construction started in late summer 1974 when the first dredger started to reclaim land south of the village of Hidd, off Muharraq Island. Yet even with dredging completed, there were still shipping experts who doubted the feasibility of creating a complex ship repair facility in the Gulf. They questioned its location at the edge of a tidal reef forming the eastern boundary of the Khor Al Qalaia inlet. Moreover, to finish the project within three years would be a miracle, they said.

Nevertheless, the Anglo-Portugese partnership of consulting engineers, Gibb-Profabril, recommended Bahrain as the best location for the shipyard after detailed studies of topography, hydrography, geology, navigation, availability of supporting infrastructures and construction costs. Their findings were accepted by CAPEC with only minor changes.

Contracts for construction of the yard and auxiliary buildings cost US \$ 137 million, ^{and} were awarded in October 1975. Within three years of the laying of the foundation stone and within two years of the contract award, the ASRY dry dock became operational. It was flooded for the first time in May 1977 and received its first vessel in September.

The Hyundai Construction Company of South Korea, backed by the full resources of the Hyundai Group used a 2,000-strong Korean work force around the clock every day of the week to construct the dock. Actually it completed the dry dock before schedule.

ASRY's first chairman predicted that in the following three years ASRY will dry-dock 60 large vessels per year. It is also expected that a large number of ships will come to the yard for in-water repairs. "Within a year", he declares, "ASRY will be prepared to undertake all the repair work expected from any first class shipyard excluding major damage repairs and conversions. This capability will be achieved in the following stages:

First

Dry-dockings, hull cleaning and painting;

Second

Minor repairs, increased mechanical and hull repairs and annual survey work; and

Third

Major mechanical and hull repairs".

ASRY is a true regional multi-lateral company in respect to the share-holding. It is also a true international company in every area of its activity, as it will sell services, buy materials, engage people and maintain financial relations all over the world. The world projection of the Gulf nations will therefore be widened and reinforced through the international ASRY image, as a large, modern and efficient industrial plant, open to the world.

ASRY will be trading a service ship repairing. In its market, ASRY will complete, as a supplier, with any other large shipyard in the world.

In order that ASRY be a success, it is of utmost importance that the yard performs as well in ship repairing as in resource markets.

1/ CAETANO-CARRERA: "The significance of ASRY to the Future Industrial Development of Bahrain".

For Bahrain in particular, the ASRY project contributes to the extension of its industrial base and the diversification of its income sources, thus promoting its economic and social development.

The construction of this project will induce downstream labour-intensive projects, has involved and will increasingly involve the following activities and consequences:

1. Training and job opportunities for citizens of the Arab countries.
2. Creation and development of Arab cadres in new specializations.
3. International co-operation and economic integration in the form of joint projects.
4. Development of related industrial and trading undertakings in Bahrain.
5. Development of the other socio-economic sectors.
6. Commercial returns.

This facility was designed in such a way that the first dock would be flexible, permitting its extension and the later addition of other docks.

The plan included the possibility of expanding the workshops and implementing projects for the production of spare parts for the dock's machinery. This would be done at reasonable costs and without hindering the operations of the dry dock.

The marketing of the dry dock's services is not limited to the repairing of vessels and giant tankers, it also generates the possibility of creating numerous complementary and auxiliary projects which utilize the facilities of the dock, its equipment, machinery and space.

In fact, a number of companies have been contracted and requested to study the feasibility of several such projects.

2. ASRY's First Years Performance

According to OAPEC's February 1980 Bulletin ^{1/}, the Bahrain dry dock owned by the OAPEC, ASRY, operated at 94% of its full capacity in 1978 and 1979.

In the two years following its official inauguration on 15 December 1977, the dry dock handled some 270 vessels, most of them VLCCs.

With this performance tankers and especially super tankers have to register two to three months in advance in order to be serviced in the dock. Three factors have been recognized to explain the soaring demands and the lengthy list of tanker reservations: first, the strategic location of the dry dock within the Arabian Gulf; second, its repairing tariffs being below those of the other dry docks of the Middle East and third, the high quality of technology serviced for tankers' reparation and maintenance; in addition, the dry dock is equipped with advanced modern equipments which are handled by advanced technical cadres. Repairing in ASRY has been qualitatively much improving, as well as the other forms of servicing. ^{2/}

^{1/} + "The Dry Dock in Bahrain, a Strategic Project on the Road to Arab Economic Complementarity", in Oil and Development (monthly) vol. 5, No. 6, Baghdad, March 1980. pp 138 - 141, text in Arabic.

^{3/} "Bahrain Dry Docks Operated at 94% of Capacity in 1979", in Arab Oil and Gas, vol. IX, No. 202, February 15, 1980, page 13.

2.1. A Collective Agreement with Arab National Hydrocarbon Transport Companies:

A collective agreement was signed on 27 March 1980 in Kuwait between the national companies of the Permanent Conference of Arab Companies for the Maritime Transport of hydrocarbons and Bahrain dry dock's owners, ASRY ^{2/}

The agreement is similar to other agreements concluded recently by the Permanent Conference members with other dry docks; it aims to "reduce operational costs of Arab tanker fleets". In fact, the agreement calls for stable dry dock costs throughout the two-year contract period.

The ASRY project must be looked at as much as an achievement of Arab development and economic co-operation as one for Bahrain as an oil producing state.

Indeed, ASRY is one of the giant Arab projects which has largely succeeded within the frame of Joint Arab co-operation. The project aims at the set up of an industrial specialized basis, the formation and training of advanced Arab cadres in the field of ship repairing and maintenance first by giving them jobs, then by assigning them with the task of full Arab running of the whole project, thereby contributing to the constitution of an advanced Arab qualified personnel. Furthermore, the project aims at the achievement of a specific form of Arab joint co-operation and economic complementarity through an economic and efficient investment of oil revenues. The project also embodies co-operation between Arab oil exporting countries and industrial nations through the servicing, repair and maintenance of their tankers in the Arab Gulf area.

1/ OAPEC Bulletin (monthly), vol. 13 No. 2 , Kuwait, OAPEC, February 1980.

2/ OAPEC Bulletin Vol. 13 , No. 4 , Kuwait, OAPEC, April 1980.

3. The Significance of ASRY to the Future
Industrial Development of Bahrain

It is difficult to anticipate the impact of the new great shipyard being built in the State of Bahrain on the economy of the region. However, it is necessary to make an effort and try to foresee that impact in order to provide a basis for planning the development of the yard itself and its environment.

Yet no quantitative model good enough to force the interactions between the shipyard and its environment, can be established using, as an input, the quantitative parameters obtained at in the process of simulating the yard's life during the next years to come. Any attempt to use an input-output matrix for that purpose is impossible, at the present moment, as the conversion factors are not known and, even if they were known, the simultaneous development of some other large projects in the area would alter them deeply in few years' time.

Therefore, an attempt made to quantify some of the provisions, remained essentially a qualitative analyses^{1/}.

3.1. The Expectations

Up to now we have been sketching a static scenario. Let us put it in motion. The simple fact that ASRY has been formed and the yard started to be built has created expectations of good business, more employment opportunities, higher wages and salaries, large fringe benefits, better welfare schemes, in a word, a higher standard of living.

These expectations may be considered as an aspect of the ASRY impact on the environment. Its feed-back is already being strongly felt by the yard managers, leading to realise that the problem is not only to have the yard built and operated on properly, but simultaneously, satisfy those expectancies as far as possible.

1/ CAETANO-CARRIERA, A.M., "The significance of ASRY to the Future Industrial Development of Bahrain In: Engineering and Development In the Gulf, Seminar of Bahrain Society of Engineers, London, 1977. Graham and Trotman Limited, pp. 71-84.

It is unrealistic to assume that all these expectations can be satisfied in a few weeks or months. The yard itself will take two years from now to be completed, and in addition some years will be required for all its fruits to ripen.

3.1.1. THE FINANCIAL MARKETS

The financial market as such will not be required much by ASRY itself, as the company gets its share capital and investment loans through special arrangements, related to its basic constitution. Daily bank operations, either in local or foreign currencies, are obviously to be considered as services.

However, the yard's spin-off will mobilize a certain amount of financial resources, both for fixed investments and working capital, that in the end will probably come through the local financial structure. In any case, the ship-repairing industry does not require very high running capital because the production is paid back within a few months. In such a situation, the industry can normally avoid short term loans, which normally are less expensive; the rates of interest are smaller.

In order to accelerate the process, education is to be given special attention. Shipbuilding is far from being a processing industry, where the production or at least the technology can be rigidly preorganized. Each vessel entering the yard constitutes in fact a particular problem to be solved in a few hours time. This requires the yard's personnel to be competent and responsible.

Competent, because repairing VLCCs worth US \$ 50 to 30 million each means dealing with complex systems and machinery, including the guide diagnosis and repair of their faults or breakdowns.

Responsible, because it is impossible to have a supervisor behind each of the 400 workers repairing a VLCC. ASRY will thus have to rely on the sense of responsibility of each employee, at any level, for the required jobs to be completed in time and properly.

The acquisition of the competence and the development of the sense of responsibility call for education, not only for jobs training. The level of such an education has to be pushed higher and higher, this tendency being essential to prepare Arab technicians and managers to fill, as much as possible and at the best convenience, the different positions offered by ASRY, and also in view of the general development of science and technology. The speed at which the Arabisation of the ASRY structure can proceed depends very much on the way the schools here will respond to this challenge, from primary schools to universities.

With regard to capital costs, the yard is already being conceived in two phases.

If we refer to the first dock, a total amount of about one hundred and eighty million dollars (US \$ 180 million), considering the inflation effect, is likely to the final cost of the investment, and running capital. In this respect a number of facts are influencing very much the ultimate costs. One is obviously training, if it was in another area where the existing manpower was already trained, probably the cost of this would be much lower both because no money would be spent on training people, nor would there be a need to build and supply a very fine training school; the school costs a lot of money.

The yard is conceived as an institution, as a power to produce social and economic development; it has been found appropriate to follow this course. Of course the partition between share capital and loans is in fact of no significance, because the financing of this project is made by special agreement among seven states belonging to OAPEC. No particular views of banks in this respect, at least directly, are being foreseen. As far as the spin-off is concerned, if we allow for about 20 per cent, 15, 20, 25 per cent could be a reasonable figure of employment created by the spin-off when the yard is implemented. Assuming the correct relationship of investment capital, we might perhaps reach a figure of 40-50 million dollars depending on the willingness of the people around to invest in this spin-off business.

The outright capital in 1978 was of seventy million dollars (US \$ 70 million); this gives the relationship of the capital to the loan. But ASRY is really not a private enterprise; it is a company where the shareholders are seven states with specific arrangements in the financial area.

The second phase is being studied, so no final figures can be stated in relation to the capital costs of the second dock. If a second dock is built, then it won't, of course, cost as much as the first dock did, but the spin-off could very well double.

3.1.2. The Management of ASRY

By contract arrangement, management of the company so far has been principally undertaken by Lisnave of Portugal, the largest and most experienced repairer of VLCC's in Europe. A technical management service is provided by Navlink, which maintains liaison between ASRY in Bahrain and Lisnave in Portugal.

The figures mentioned above are roughly equivalent to the renewal of the management 8 to 10 years after the process starts. This is a minimal period for the Arabisation structure to develop and at the same time to ensure that the required information and know-how is properly passed over and assimilated by the new managers.

The know-how market will be indirectly exploited by ASRY, inasmuch as the yard will buy materials and services, either produced in the region or imported from other supplying markets, through the commercial organization and agents network already established in Bahrain. This will require a specific know-how to develop in such areas, both technical and commercial, to assure that those materials and services fully comply with the required standards, both in quality and in delivery terms.

Although no specific plans have been outlined for that, we would like to point out that ASRY will eventually develop in some areas (like shipbuilding, sophisticated repairs, manufactures of secondary semi-products, etc.) where new skills and capabilities will be required. If so the impact of the yard in the know-how market will be amplified in relation to what we say above.

3.1.3. The Question of the Labour Force

An independent marketing organization, ASRY Marketing Services (ASRYMAR) operating out of London, has been established by OAPEC to inform tanker owners all over the world about the advantages of using ASRY's facilities in the Gulf. ASRYMAR has now agents in 14 major tanker-owning countries that control 97 per cent of world VLCC tonnage. The thrust for its sales efforts is to be competitive in every respect - in time, price and quality.

The shipyard being built in Bahrain is a very large and complex machine, which will require many skills. It would have been unreasonable to assume that the local labour market can immediately supply all the required manpower, both in quantity and quality.

Ship repairing is strenuous, difficult and dangerous. The manpower engaged in it has to be competent and responsible, as already underlined. The quality of the workers and their behaviour is of vital importance, especially during the first years of operation, when a good reputation in shiprepairing is to be gained by the yard.

Looking at the labour force locally available, it is evident that it will take some years of hard work in education and training, before some thousands of skilled workers of various trades can be formed in Bahrain and its neighbourhood.

As for the labour requirements, the Arab countries, particularly in the Gulf area, are developing their economies at a high rate, by means of large development plans that include housing, health, education, infrastructures, agriculture, commerce and industry, not to speak of the enlargement and modernization of every branch of the public administration. For Arab citizens this means thousands of qualified and well-paid jobs, making it even harder to solve the problem of getting good workers for ASRY.

3.1.4. The Question of Labour Training and Arabization of Labour

To construct the dry dock the Hyundai Construction Company of South Korea used 2000 Korean workers.

ASRY's labour force numbered 900 in 1977 and was to reach 1,100 in 1978. Eventually, the yard is expected to employ 3,000. One aspiration of ASRY's board is that the yard - the first major pan-arab industrial venture - will provide training for young Arab seeking experience in heavy industry.

ASRY technicians operate huge hydraulic guillotine in plate shop, while a central console in the dry dock's pump control room automatically operates dock gate and dewatering pumps.

The shipyard's training centre teaches a wide range of skills required in the labour-intensive ship repairing industry.

ASRY's training and development programme is aimed at complete Arabization of shipyard trades and assumption of 30 per cent of management functions within 10 years.

But ASRY's chairman believes that Arabisation is to be attained gradually that the company should be flexible about target dates; he explains that ^{the} Arabisation programme should not be pushed through in a way that would hinder efficient management of the company.

A large training centre has been built at the yard, and Lisnave (through Havlink sees that courses are implemented in the many skills required in the labour intensive ship repair industry. In parallel, Arabs are to assume ASRY management posts when they have gained sufficient knowledge of the industry.

Arabization of ASRY personnel made fresh progress in 1979. At the end of November 1979, 52% of the Company's 1,321 employees and 50% of its senior staff were Arab nationals. ASRY aims to raise the proportion of Arab nationals on its payroll to 90% by 1987. Arab cadres now represent 50% of ASRY's senior staff. In 1979 some 686 employees have been given a training for certain jobs, and 28 Arab employees were sent to follow training courses in the ship industry abroad. This indicates that the Arabization of the Company is progressing steadily with the aim to achieve total Arab management of the project during the forthcoming years.

Special attention is paid to training within the Arab Ship Repairing and Maintenance Yard.^{1/}

The Arab Company has set a concise objective to arabize all its technical and administrative staff within the first ten years following the implementation of the dry dock project. In summary, this programme sets the obligation to arabize 99 per cent of the posts falling under the job-level categories of 1 to 5, 35 per cent of the job categories of the 6 to 10 levels. As to the levels from 11 to 15, they should be arabized at not less than 80 per cent.

Two main programmes were set for training:

- 1) a programme aimed at the training and qualification of Arab professionals;
- 2) a second programme aiming at the Arabization of middle and senior staff posts.

^{1/} "Training in the Arab Ship Building and Maintenance Company",
in: OAPEC Bulletin, Vol. 3, No. 7, Kuwait, OAPEC, July 1977, p. 10

3.1.4.1. The training of Arab technicians or professionals ^{1/}

The programme of training Arab professionals was launched in Bahrain at the beginning of 1975. Meanwhile, a training centre related to ASRY was put up in the dock site. This centre includes a theoretical training section which can welcome 450 trainees, an English language laboratory and 400 m² of modern workshops equipped with a number of suspended and most recent training equipments.

In 1976, the training centre welcomed 130 trainees, who have been trained on running machines, painting, electrical equipment and mechanical assemblings.

It is worth mentioning that the company had in fact welcomed a bigger number of trainees, but that some of them were encouraged to abandon their jobs shortly after their training, in view of the labour shortage in Bahrain. ^{2/}

^{1/} ASRY, Annual Report of ASRY's Council of Administration for the Second Year of the Project, 1977. Bahrain, ASRY, 1977

^{2/} "Training in the Arab Ship Building and Repairing", in: OAPEC Bulletin, Vol. 3, No. 7, Kuwait, OAPEC, July 1977, pp. 10-11, in Arabic

A plan to apply an intense programme was set, including a big number of training courses in order to train 520 trainees. The success of such a programme was to allow the company to obtain 40 per cent of its requirements of skilled labour from other countries.

In 1976, there were 28 trainers and employees working in the training centre. Out of this total 20 were Bahrainis and 8 foreigners.

3.1.4.2. The Arabization of middle and senior administrative posts

In April 1976 ASRY's board had adopted a programme aiming at the Arabization of intermediate and high administrative jobs. According to that programme, ASRY would integrate 27 graduates from universities or corresponding institutes to train 13 of their employees in the company and would send the others abroad for training in foreign dry docks.

Draft courses at ASRY are structured on the training system used at Lisnave. A basic school for welders, pipe fitters and mechanical fitters was established in Muharraq two years before the opening of the shipyard, and about 150 craftsmen (the majority of whom are Bahrainis) passed through its programmes before training was transferred to the new yard.

The project aims at industry development in the Arab Gulf area and at professional and technical training for nationals of ASRY member countries in the fields of ship repairing, maintenance and building. Thus, the dock constitutes a practical scale for the transfer of know-how and technical expertise.

At its first stage the dock will allow ship repairing; later the project will go into industrial manufacturing including vessels construction.

It can be clearly seen that the project is not aimed at mere commercial profit making. Instead, it is conceived as one of the long-term projects focusing on industrial development as well as on technical and professional training in the area.

It is because of this very characteristic of such projects, that they are carried out by Governments; corporations show no enthusiasm for long-ranged projects; they usually focus on short-term profits and only some corporations take the risk of going in mid-term ventures.

Though the dock will service different vessels which would require maintenance, the development of Arab transport fleets, those belonging to any or a group of the OAPEC member states, like that of the Arab Tankers Company, will guarantee a certain degree of operation for the ASRY's dry dock whose servicing capabilities is synchronized with the increase of vessels of Arab fleets.

The ASRY dry dock satisfies the essential preoccupation of vessels without being forced to change their journey lines. It is for this reason that the ASRY site in Bahrain entitles it to a substantial advantage for the vessels which visit the different Gulf harbours.

A special attention is paid to training within the Arab ship repairing and maintenance yard ^{2/}.

1/ "The Arab Ship Building and Repairing" in: OAPEC Bulletin, Vol. 1, No.2 Kuwait, OAPEC, November 1975, pp. 3-10. Text in Arabic.

2/ "Training in the Arab Ship Building and Maintenance Company" in: OAPEC Bulletin, Vol. 3, No. 7, Kuwait, OAPEC, July 1977, page 10.

A decision has therefore been made to build a modern school in the yard, able to train between 250 and 300 skilled workers a year. Assuming that it will be fully used and allowing for a certain percentage of losses, it will take ASRY about 5 to 6 years to have 600 to 900 Arab workers thus trained, scarcely the effective manpower required by one dock. If a second dock is built, another 4 to 5 years will be necessary to double that figure. Although a strategic move, the result of such a decision are not to be seen for some time. On the other hand, to invest and not to sell the installed production power due to the lack of labour would have been disastrous. The solution has been to temporarily engage skilled workers, coming from other areas, namely India and Pakistan, both a traditional source of manpower for the Gulf, or even Europe or elsewhere, for the more specialized jobs.

3.1.5. The Service Market

The local services market will be very much used in many areas, either to complement the ASRY structure and operational means or to carry out specialized tasks.

In the first case, the classical example is the subcontracting activity generated by ASRY. As each particular vessel coming into the yard will require particular repair jobs to be made, the overall workload on each trade will be available and will often exceed the yard's capability. In such cases, ASRY will try as much as possible to subcontract work around. Experience tells us that co-operation in this field between the yard and nearby shops or industrial plants may be fruitful for everyone. This sector of the services market may be worth US \$ 3-5 million a year.

In the second case, banking, insurances, travel, transport, etc, are included. These services will be used not only by ASRY itself, but also by shipowners and crews, making it difficult to assess its overall dimension.

3.1.6. The Materials Market

The materials directly concerned by ASRY may very well represent a demand worth US \$ 5-10 million a year, depending naturally on the number and the size of the vessels calling at the yard in the same period.

There are basically three categories of materials, each one with a particular supply cycle:

1. The First category is made up of those materials (like steel plates and profiles, pipes, electrical cables, etc.) that are to be transformed into products in the yard, through a more or less complicated process of manufacture, prefabrication and installation on board. The yard will standardize them as much as possible, will carry stocks of them and will buy them currently on a normal tender basis.
2. The Second category is formed by materials going directly on board, for example, equipment, machinery or parts often bought by the yard, on a case by case basis, as they have to suit particular conditions of performance and/or delivery terms.

In relation to the Arab nation as a whole, the engagement of skilled workers coming from abroad is to be understood as a launching platform to make the yard viable during the first years of operation and to let the yard have enough time for Arab workers to be properly trained.

In relation^{to} the labour markets, the conditions offered by ASRY, including wages, must be such as to ensure that ASRY gets the skills required to properly repair VLCCs, without starting a wages race.

The decision to train personnel on a large scale indicates the solution proposed by ASRY's managers for the problem, that is opening the way to higher wages through higher qualifications and productivity. With such an aim, co-operation between ASRY and other responsible organizations is required in education schemes, already established or eventually planned by those organizations. Planning will certainly help in coping with the situation and in following the right trends in social and economic development.

It is hoped that the yard, a great Arab company, dealing with largest tankers afloat, requiring an immense variety of skills, will attract local people. But as the demand of skilled labour is high and the shipbuilding jobs strenuous, difficult and dangerous, it remains to be seen if a sufficient number of those people will be willing to stay with ASRY for a long period.

The fringe benefits scheme of the company will probably help to increase the attachment of the labour to the yard, although it looks very difficult for ASRY to lead the market in this respect, some of the already established industries having schemes that, economically speaking, are beyond the possibilities of a shiprepair yard. In any case, ASRY proclaims its intention to stay in line, as much as possible, with the best employers in Bahrain, namely in the three basic areas: housing, health and education.

3. The third category is made of materials either belonging to the shipowners or bought by the yard on their behalf, in which the yard generally has no say in the choice of the supplier, due to technical or equivalent reasons.

In any case, the delivery speed is of utmost importance, and the Bahrain commercial structure, through which many of those materials will naturally be purchased must give particular attention to this requirement.

Materials falling under the third category may not necessarily all favour a gradual integration of ASRY in a future regional or pan-Arab integrated industrial and technological structure, through a regional appropriate set of equipment and other engineering industries. To the contrary, the other materials of the first and second categories may and should fit in such a regional, integrated and largely import-substantive scheme of engineering industries. Surely, such an option constitutes a real industrial and technological challenge, but with the implementation of ASRY in Bahrain and other dry-docks in Dubai and in southern Iraq for the Gulf area, the construction of Algeria's and other dry-docks in Arab North Africa, a development of equipment and engineering industries aimed to support those dry-docks could be as much justified as favoured to insure both their commercial and social profitability. An input-output matrix is necessary to determine the pattern and the feasibility of the adequate equipment and other engineering industries whose development can feed and sustain the largest part of materials to be required in ASRY and the Arab ship repairing and later shipbuilding yards.

Distinction of the different components and parts required for the ship repairing yards has to be made:

1. There are spare parts that the yard will carry in stock, normally flanges, valves, bolts, and similar things. The stocks foreseen for ASRY are somewhat larger than one could expect to see for instance in Europe, due to the fact that ASRY anticipates a certain difficulty in getting them quickly.
2. Some of the other parts are carried out normally on board ship and they don't present any particular difficulty from the question of essential items because the vessel has this normally on board.
3. Then comes the most difficult area in respect of this, those spares or common spares that ASRY hopes merchants will decide themselves to carry in stock. ASRY will have to see how the market will react. If people around the sites invest a little bit more in stock, and of course recuperate it when they supply to the yard at an appropriate price, ASRY will be in

the same situation as if it had carried the stock itself. If not, ASRY declares to be quite decided to use airways or roads communications if necessary. ASRY evokes the possibility of large trucks coming from Europe to Bahrain within 3 to 5 days with a particular heavy part that could eventually be required on board a vessel, otherwise, if the part is very, very light, obviously the solution is to freight it by plane and have it in Bahrain the next day. According to ASRY sources, it may cover almost 99 per cent of the cases.

3.1.7. The Equipment Market

This is a rather difficult market, where the technical expertise of the yard's designers is most important, as the need to use reliable equipment has to be balanced against innovation and cost.

Reliability means that the equipment should have been properly developed, designed, built and tested in full scale; then that proper arrangements are established to ensure maintenance during its lifetime.

As far as cost is concerned and bearing in mind that we are dealing with life cycles of 15, 30 and even more years, comparisons in most cases can only be made by discount technicians.

The local industry being not in a position to produce equipment for ship-yards, the impact of ASRY on the environment, in this area, is likely to be felt mainly by the commercial agents. Such impact will not be limited to equipment purchases, the need for spare parts and fittings being permanent all along the equipment's operational life.

4. The Prospects for a Second Dock

The dry-dock was conceived by CAPEC around 1974-1975 at a time when the demand for VLCCs was very high. Later the demand for the VLCCs has gone down and the crisis struck the trade of oil. While this has not deeply affected this yard, ASRY is paying close attention to this situation and studying the second dock. Thus the study of the second dock has proved that it is much more difficult to determine the right size of the second dock. However, there are already more than eight hundred of the VLCCs, existing or to be delivered, and this is such a large amount of effort and such a huge investment that nobody can think of those VLCCs being scrapped from one day to another. They must continue the trade. They have to be repaired. Moreover, ASRY has the ideal situation with a new position

in the world to attract tankers to be repaired, because that's the place, where most tankers arrive empty and in a condition to be repaired. But the prospects are a little bit different when thinking about the size of the vessels, because it is necessary to try and anticipate what will be the fashion for the next ten years of the vessels calling at the Gulf, and then try to find the right size of the docks in order to avoid a new expensive investment; but now at the same time, ASRY has to take as much as possible of the existing market opportunities.

As far as the other shipyards are concerned in other areas of the world, many of the yards succeeded in areas which are not competing with ASRY because they are serving another market, they are shiprepairing for all carriers. It's a completely different market, so ASRY does not consider them as in any relation to the tanker market.

As for the competitors outside the Gulf area, the main competitors are to be found in the Mediterranean area, now that the Suez Canal has been opened, and perhaps other shipyards may develop in Africa which could be considered as competitors. Even in this case, ASRY has the advantage of the ideal position of Bahrain. Bahrain is really the best place all over the world to build a tanker, so even if competitors appear, ASRY can manage, but the reason is really a good adaptation to the market.

The project aims at industry development in the Arab Gulf area and at professional and technical training for nationals of ASRY member countries in the fields of ship repairing, maintenance and building. Thus, the dock constitutes a practical scale for the transfer of know-how and technical expertise.

At its first stage the dock will allow ship repairing; later the project will go into industrial manufacturing including vessels construction.

From the planning point of view, one may distinguish between the yard's building phase and the operational phase. However, it is to be clearly understood that from technology and management points of view, the company's life will not have any discontinuity. The know-how required to lead towards success is to be available all the time and to be integrated.

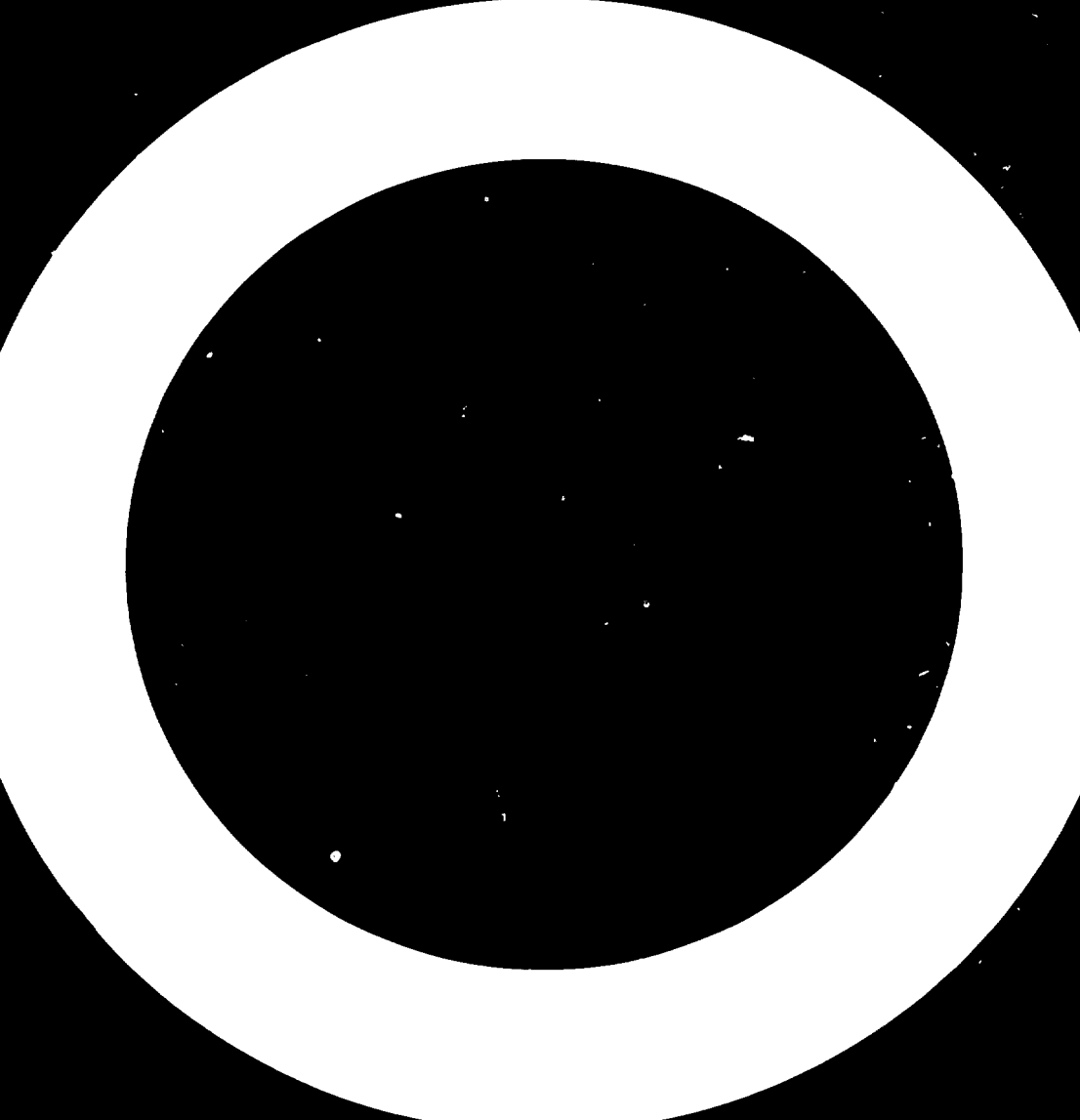
Between 1,000 and 1,500 people will work in the shipyard by 1978, with the first dock in operation. If and when a second dock becomes operational the labour requirement will be probably twice as much. 10 - 15% of these people will be technicians and/or managers, and the company is therefore competing on an international basis to get them.

The first team is obviously to be formed by experienced people, carefully selected to set up and launch the yard. By the end of the present decade a need of a certain amount of replacements is foreseeable as well as the eventual development of the yard's production power. This means a demand by ASRY of 3 - 16 new technicians and managers per year, of which about one third are to be university engineers and economists, during the first years of the 1980's.

ASRY made proper arrangements with regional schools and universities for young Arab graduates to come and progress in the yard, then eventually be offered a position from which they can start a career based upon their merits.

CONCLUSION

Thriving business, higher standards of living, a real contribution to the social and economic development of that environment are the ultimate results everyone is aiming at. However, they will not follow automatically the construction of the docks. It will be necessary as well to solve some problems, with the available resources and within the constraints applied by the shiprepairing market itself, the Gulf's social and economic structure and the market supplying know-how, equipment, manpower, materials, services and finance.



The country's principal natural resource - oil - is running out, and efforts are being made to quickly transform Bahrain into a service centre for the Gulf. To attract the offshore banking units, offshore companies and international air and sea traffic (which Bahrain has successfully done), the country's infrastructure has been greatly improved.

However, with this success and its attendant rise in the economic power of the indigenous population, demands on the infrastructure have grown proportionately.

The proposed construction in the middle of the next decade of an \$ 800 m. causeway to Saudi Arabia (by which Bahrain hopes to become a major gateway to its big neighbour's Eastern Province) will impose even greater strains.

The strength of this new demand is strikingly reflected in Bahrain's current budget. Out of the \$ 362.5 m allocated for projects, nearly \$ 92 m. has been set aside for housing and \$ 37 m. for electricity, which together make up almost 50 per cent of the total. ^{1/} This policy aims at consolidating the infrastructure so as to become compatible with economic growth in various fields.

Reference: Some structural Bahrain problems in: The Financial Times, London, Monday 3 April 1978. Special Report Bahrain.

1. SEA TRANSPORT

Bahrain's main port is Mina Sulman, which was built in 1961. The port provided berth facilities for six ocean going vessels up to 30 feet draught, with modern tugs, cargo handling and bunkering facilities. There are two small specialized ports, namely the Sitra jetty, which is the oil terminal for the oil refinery, and the Alba jetty, which serves the aluminium smelter. The Sitra jetty can accommodate six small tankers (35,000 tons) for refined products; and the Alba jetty can berth three ships of 35,000 tons each.

Ships calling at Mina Sulman increased from about 600 in 1971 to about 900 in 1977, and cargo handled increased by two and a half times during the same period. This increase in traffic, particularly of the large ships, led the Government in 1972 to decide to expand the port. This decision was reinforced by the economic boom following 1973. During the boom years, the sharp rise in traffic resulted in considerable pressure on the port facilities, leading to severe traffic and cargo congestion. The waiting time for ships during 1976 varied from 55 to 60 days. The Government took a number of temporary measures to reduce the congestion and at the same time proceeded with its expansion project for the addition of six more berths.

The temporary measures included hiring a Korean firm capable of unloading merchandise at twice the previous speed, constructing four temporary berths, increasing storage fees, and limiting the storage time. As a result, by 1977 there was no waiting time, and the port surcharge was eliminated.

Expansion of the port by six more berths and dredging it to a depth of 36 feet is estimated to cost BD 60 million. Also, the port will have a container terminal capable of handling first and second generation containers. Completion of all the six berths is expected by early 1979. Two berths have already been completed.

Although full cost recovery of the six new berths may not be achieved for some time, authorities believe that the new berths will eventually be fully utilized. Port authorities contend that, despite the rapid expansion of port facilities in the neighbouring ports, particularly in Saudi Arabia where the neighbouring Dammam port is five times larger, ships still prefer to discharge their Saudi cargo in Bahrain because of the simple regulations and good management of Mina Sulman. They also believe that the competitiveness of Mina Sulman with the Saudi ports will increase when the causeway is completed, since it will be more convenient and faster to transship goods destined for Saudi Arabia via the causeway. Finally, the establishment of a joint venture between Bahrain and New Zealand for warehouse and cold storage for meat and agricultural products in the free zone of Mina Sulman is expected to add substantial demand for container facilities at the port. The cold storage will have a capacity of 3,100 tons and may lead to cargo of 200,000 tons a year. The bulk of the stored products will be transported by trucks across the causeway and sold in the Saudi markets. ¹

¹ WORLD BANK: Report No. 2058-BE, Bahrain Current Economic Position and Prospects, pp.26-27

2. THE SAUDI CAUSEWAY

The proposed Saudi causeway will be about 22 kilometers long, linking Bahrain island to the Saudi mainland. Tenders for the construction of the causeway were called in November 1973.

Its estimated cost is about \$300 million, which will be financed by Saudi Arabia. The causeway will have 4 lanes and a number of navigational openings to allow the passage of ships. The construction period is estimated at 4-5 years. Technical and economic feasibility studies for this project began early in 1975 with some World Bank assistance.

The causeway includes adequate approach road systems at each end, which were coordinated with road development plans.¹

The causeway is expected to induce the development of road transport between Bahrain and the neighbouring Gulf countries, and will link Bahrain with the rest of the Arab world and Europe. This is expected to give a boost to the entrepot and transit trade, Bahrain's main traditional activities.

The construction of the causeway to Saudi Arabia will also help in the integration of Bahrain manufacturing with the development of the Saudi east coast. Products could range from welding electrodes to traffic signs concentrating on those items where the demand is not large enough to interest large-scale enterprise. Consumer goods such as food products, paper goods, medicinal products and car accessories should find a market both at home and in the Gulf area. Service facilities for the repair and renovation of durable goods such as airconditioning equipment, typewriters and electric motors should be feasible.¹

^{1/} WORLD BANK: Report No. 2058-BH, Bahrain Current Economic Position and Prospects, pp. 16 + 25

3. CONSTRUCTION AND HOUSING

The economic boom in Bahrain and neighbouring OPEC countries, following the 1971 increase in oil prices, was led by the construction industry. Foreign business has avidly sought business in the area which resulted in a sharp rise in demand for office space and accommodation for employees. This was accentuated by the easy access to construction money from the governments and banks. Between 1973 and 1977 the cost of construction more than tripled. As a result, during 1973-77 the construction sector recorded an annual growth rate of about 55 per cent in current prices compared to an annual growth rate of only 15 per cent in real terms recorded during the same period.^{1/}

No reliable statistics are available on the number and type of construction permits issued during the boom years. However, it is estimated that about 2,000 houses were constructed during 1975 and 4,000 annually during 1976-77. Also, bank credit for construction rose from BD 12.4 million in 1973 to BD 130.6 million in 1977, or from about 16.9 per cent to 44.4 per cent of total bank credit in these years. In addition to these banks, other large sources of finance became involved in construction such as the Government, local and foreign investment companies from Kuwait and other neighbouring countries, and wealthy private individuals. These were responsible for the rapid growth in the construction sector which amounted to about 16 per cent p.a. in real terms during the period 1974-77.

One of the consequences of the construction boom was the emergence of a number of local construction industries, and local contractors. There was also an increase in the sophistication of private investors who instead of investing individually began to pool their capital and form investment companies able to obtaining larger loans and undertaking larger construction projects. However, the construction boom added to inflationary pressures and became a considerable threat to the urban environment raising serious questions about the adequacy of the existing zoning regulations, construction codes, and the capability of the municipalities to keep the country tidy. The desire

^{1/} WORLD BANK REPORT No. 2058-BH, Bahrain Current Economic Position and Prospects, pp. 16-17

for Bahrain to become an attractive center for international business and finance, and her massive investment in infrastructure projects for this purpose calls for a clear urbanization policy and physical and city planning to preserve the country's beautiful natural environment and ensure a healthy urban surrounding. Assistance on urbanization issues, particularly on zoning and city planning, is strongly recommended. ^{1/}

^{1/} WORLD BANK REPORT No. 2058-BH, Bahrain Current Economic Position and Prospects, pp. 16-17

3.1. Housing Policy and Planning

The Government provides low-cost houses at prices which can be afforded by the lower-income groups. Also, for the sake of reducing crowded conditions in Manama, the Government has been dispersing its public housing and construction projects over the islands, and adopting modern planning for the new emerging communities. The best example of these modern public housing schemes is Isa Town, about 1.5 miles outside Manama. The first stage of the town with about 1,700 houses and the needed social services, was completed in 1963. Since then the town has expanded in all directions.

The boom of 1973 and its consequent sharp demand for houses by foreign companies has led to a rapid rise in rent and construction costs. It is reported that the cost of construction per square foot increased from BD 6 in 1973 to BD 20 in 1977, and for the same years the monthly rent for an average sized apartment increased from BD 50 to BD 500, and for an averaged house (villa) from BD 80 to BD 800. This made it impossible for the lower-income groups to obtain decent housing.

In July 1974, a national housing study was commissioned, and in July 1975 was submitted to the Government. The study concluded that Bahrain would be facing a serious shortage of houses over the coming decade, and needs 2,500 houses a year to tackle the housing problem. The study also suggested the establishment of a public body for that purpose. As a result, the Ministry of Housing was established in August 1975 to carry out the government policy of providing low-cost housing for the low-income group.

Motivated by the considerable profit opportunities, the private sector has responded well to the sharply rising demand for more expensive housing. A large number of all types of houses have been constructed. In fact, when economic activities in 1977 slowed down, the supply of houses and apartments was higher than demand, resulting in a

drop in rent. One estimate is that there are 1,000 surplus high-cost housing units now in Bahrain.

3.1.2. The public housing programme consists of two parts: construction and loan programmes. The construction programme involves the construction by the Ministry of Housing of 2,000 housing units a year. These houses, which are constructed largely by local contractors, are then sold by the Ministry of Housing to low-income people at prices calculated on the basis of the individual's ability to pay. This usually means 50 to 75 per cent of the cost. The beneficiary pays by instalments over 20 years. Houses constructed in 1976 were 2,291 (1,089 system; 1,023 traditional, and 174 apartments) and in 1977 1,473 (300 system; 776 traditional, and 402 apartments).

3.1.3. The loan programme involves providing construction loans for up to BD 20,000. These loans are given to citizens who can afford to construct a house on their own property. Land is usually provided free by the State. The loan is for 25 years, and it is interest-free. About 80-90 per cent of the loans have been for home construction, and the remainder for home improvement and extension. In 1977, the Ministry approved 1,000 applications for housing loans, of which 57 per cent went to government employees and the rest to private citizens. Total loans made during 1976-77 were BD 17.5 million.

The fact that the Government is currently providing heavily subsidized houses has resulted in the scrambling of people to get on the eligibility list. As the annual supply of public houses is very limited in relation to demand, frustration and resentment is present among many applicants. As a result, authorities are now revising their housing policy in order to reduce housing subsidies to the well-to-do recipients, and decided to establish a housing bank which will reimburse the Ministry for the selling price of the house and collect the instalments from the recipients. The bank will then be able to vary the interest rate according to the payment ability of the recipient. With the housing bank, authorities hope that people may begin to feel that the house they receive is financed by a loan that has to be repaid to the bank concerned. The long-term objective of the bank is to provide loans directly to eligible individuals who will undertake the responsibility of construction themselves. This is a step in the right direction. No date has yet been set for establishing the proposed housing bank, but 1978 is a possibility. ^{1/}

- 3.2. The current target of the Ministry of Housing is to construct 2,000 housing units a year by 1982. The estimated cost per unit for 1978 is ED 13,500. Capital expenditure estimated by the Ministry is ED 47.3 million for 1978 and 1979, and ED 30 million a year for 1980-82. The Ministry's long-term plan is completion of its housing construction programme by 1985. Occupancy per room is to be reduced from 2.67 to 1.5. This is to be followed by a large renovation programme in the old Arab sectors of the city to preserve the traditional old houses and buildings.

^{1/} *ibid.*, pp. 30+31

3.3. The Three-Year-Plan for Housing

The government is to invest ED 75 million (\$ 195.4 million) in a three year plan for housing. Investment will be ED 15 million (\$ 39.1 million) in 1979, increasing to ED 30 million (\$ 78.1 million) in both 1980 and 1981. The government hopes pension funds and commercial banks will also invest in the plan. ^{1/}

A housing bank, under consideration for some time, was to be set up to provide low interest loans on long terms to Bahraini house buyers. The interest rates may be 5 - 6 per cent, for 25 years. Ministry of Housing undersecretary Abdel-Latif Karoo said that, although the aim is to build homes, "as a byproduct, the programme is designed to help local contractors and boost the economy".

^{1/} "Bahrain. Government to Invest \$ 195.4 million in Homes", in: Middle East Economic Digest (MEED), Vol. 23, No. 5, London, Feb. 1979, p. 18

The housing allocation is part of a programme for the construction of 2,000 low-income and middle-income homes per annum 1977-86. Prefabricated units are the basic ingredient of the programme, and system building of various sorts is its keystone. Speed is of uppermost importance. The Bahraini population is growing by 3-4 per cent a year, and the Government, for both political and social reasons, wants to spread the country's new prosperity as quickly as possible.

- 3.4. Two building systems have met with success in Bahrain. One, the Camus system from France, is used by United Building Factories (UBF), a British-managed locally incorporated company^{1/}. The other is the British-developed MOD-L system and is used by the venture formed jointly by Bahraini Contractor Abdulla Nass and the British construction company Tarmac.^{2/}

UBF, which has a large factory on the edge of the desert, stresses its factory control in dealing with the Gulf area's chemically corrosive aggregates and water. MOD-L does not need such elaborate facilities. It also can be set up on site, although Tarmac Nass, because of the relatively short delivery distances and other reasons of convenience and efficiency, chose to make their panels centrally on a site near Delmon Ready Mixed Concrete (another Nass concern).

UBF, which now only working at about half-capacity because it is between government contracts, studying the possibility of exporting by ship to Saudi Arabia and the rest of the Gulf. Both companies' long-term future probably lies in the access to eastern Saudi Arabia.

^{1/} The Bahrain Government has taken a 60 per cent stake.

^{2/} Some structural Bahrain problems in: The Financial Times, London, Monday 3 April 1978. Special Report Bahrain.

4. ELECTRICITY

Electricity was introduced in Bahrain in 1929 when the diesel generators in Ras Rumman power station were inaugurated. Electric power in Bahrain today is generated by stations owned by three separate organizations: the Government, BAPOC, and ALBA, with installed capacity of 290 MW, 60 MW, and 300 MW respectively. It is, therefore, clear that ALBA's capacity is a little more than that available for the domestic use of the whole country. Access to electricity in Bahrain is very high amounting to about 98 per cent of the total population. The rising standard of living and the consequent rise in the use of airconditioning coupled with the increase in the number of industries have resulted in a rapidly rising demand. For example between 1970 and 1977, units consumed increased at 25 per cent annually. This had led to severe pressure on the airconditioning requirements (Table 3.20 of Statistical Appendix). During the years 1973-77 the demand for electricity was so high that the Electricity Directorate had to resort to borrowing electricity from ALBA.

Electricity can be illustrated by the fact that demand has grown by 30 per cent per year for the past four years.

Peak demand last summer (at the height of air-conditioning use to cope with Bahrain's sweltering temperatures and humidity) was 223 MW, which in theory was comfortably covered by production capacity of 280 MW. However, the threat of power cuts was always there and only a mechanical failure or a shut-down for unforeseen maintenance work was needed. If, as expected, demand grew by another 30 per cent in 1978, the existing capacity failed to be adequate.

To meet this rapidly rising demand, the Government has accelerated its expansion of the power generation capacity. Between 1965 and 1975 installed capacity of Manama power more than tripled rising from 41 MW to 133 MW. Also, in 1972 work began on the construction of a new large steam turbine power station at Sitra with a capacity of 1100 MW and a cost of BD 30 million. This station also included a water desalination

plant for 5 million gallons of water a day. Initial schedule was for the completion of the project in four stages by 1985, but implementation was accelerated rapidly, and the project was completed in 1977. In addition, a second gas turbine power station in Muharrag with installed capacity of 40 MW was completed in 1977, bringing the total installed capacity in that year to 290 MW.

Moreover, to ensure the availability of adequate power supply in the future, the Government is now constructing a fourth power station at Rifa with a capacity of 200 MW. The first phase of 100 MW is due for completion in August 1978, and the second stage in 1979. Cost of this project is estimated at ED 10 million. Total investment in electricity (including water desalination) amounts to ED 127 million over the past five years (1974-78) and is projected at ED 117 million over the next five years (1979-83). The Arab Funds have been the main source of funds for these projects. To assess future power needs, the Government recently appointed consultants. It is also contemplating importing power from Saudi Arabia across the causeway during 1985-90.

Therefore, Bahrain has embarked on an ambitious 10 year power programme, the first part of which is the construction of a fourth generating station at Rifa at a cost of \$75m. The first 100 MW stage of the Rifa plant will be complete in July or August, with the other 100 MW stage to be finished next year. ^{1/}

^{1/} 'Some structural Bahraini problems' in: The Financial Times, London, Monday 3 April 1978. Special Report Bahrain.

In addition to ensuring the availability of power, the Directorate of Electricity is making serious efforts to economize its use. Power in Bahrain is heavily subsidized. The rates are too low which is encouraging waste. As a first step, the Directorate changed the rate structure from a flat rate of 5 fils per kWh to 5 fils per kWh for the first 1,000 kWh, and 12 fils per kWh for the additional units consumed. The next step will be to differentiate rates between commercial and home users. The Directorate is also intending to base its rate structure on the real cost of electricity by shadow costing the gas used instead of the present practice of assuming zero cost.

Implementation of these objectives would be made easier, if the Electricity Directorate is granted autonomy. This will also enable the Directorate to recruit the needed qualified technical staff which hitherto has not been able to do so, because it could not recruit at a higher than the Government scale, which resulted in the loss of many of its qualified staff to the higher paying private enterprises and neighbouring governments. Finally, to enable the Directorate to function more effectively, there should be planning and coordination between it and the other Government agencies who undertake projects that require electricity. This will avoid the present situation of having projects completed without the prior knowledge of the Directorate which is blamed for not being able to provide the electricity on time. ¹

^{1/} WORLD BANK: Report No. 2058-BH, "Bahrain Current Economic Position and Prospects", Washington, June 28, 1978, pp 28-29

Table __ : ELECTRICITY PRODUCTION AND CONSUMPTION

Year	Installed Capacity (Megawatts)	Peak Load (Megawatts)	Units Produced ^{1/} (KWh)	Number of Consumers
1970	79.8	60.8	243.3	42,000
1971	79.8	67.8	257.5	44,000
1972	92.0	73.0	283.2 ^{2/}	46,000
1973	92.0 ^{3/}	93.0 ^{3/}	331.0	48,000
1974	92.0 ^{3/}	108.0 ^{3/}	395.0	50,000
1975	161.0	143.0	505.0	52,500
1976	230.0	171.0	682.3	54,000
1977	290.0	223.0	896.0	59,500

Source: Statistical Bureau, Ministry of Works, Electricity, and Water.

^{1/} Excluding losses in transmission.

^{2/} 7.2 million is the contribution of ALBA to the domestic consumption.

^{3/} Difference in installed and peak is made up by Alba power station.

Monthly Electrical Generation,
Maximum and Minimum Loads, 1976

	Electricity Generated MW	Maximum Load MW	Minimum Load MW
January	30.4	65.4	28.0
February	28.6	64.5	27.5
March	29.5	64.8	22.1
April	33.7	76.0	27.6
May	58.2	127.1	48.1
June	76.1	152.6	69.2
July	85.0	158.0	64.0
August	91.6	171.0	88.0
September	94.0	171.0	92.6
October	79.6	158.0	70.0
November	41.2	89.5	37.0
December	34.4	68.3	35.0
All Year	682.3	171.0	22.1

5. WATER

The demand for water is also growing apace, and the situation is made worse by the increasing salinity of the country's ground water supply. The causes and possible extent of the problem are not fully understood, but a strict monitoring programme has been established. As more and more ground water is extracted, sea water increasingly enters the aquifer, from the east to the west

Table Water Consumption
(In millions imperial gallons)

Months	1973	1974	1975	1976	1977
January	389	402	422	464	574
February	385	377	396	435	564
March	418	424	446	490	596
April	424	434	456	501	601
May	458	465	489	537	619
June	461	473	497	547	639
July	482	510	535	539	669
August	597	505	541	595	578
September	495	499	523	575	664
October	487	512	538	591	674
November	444	468	491	541	620
December	427	448	470	517	571
Total	5,467	5,517	5,804	6,332	7,469

Source: The Water Supply Directorate.

Reference: Some structural Baharain problems in: The Financial Times, London, Monday 3 April 1978. Special Report Bahrain.

5.1. Aquifer

While studies continue to determine the extent of Bahrain's aquifer and any possible links with aquifers in Saudi Arabia, Bahrain is pressing ahead with its programme to meet growing domestic need with more desalination capacity.

Domestic demand is currently running at 12m. gallons per day and is expected to rise to 20m. gallons per day in 1983. The Sitra power station now has two desalination units each producing 2.5m. gallons per day, and expansion plans envisage the output rising to 20m. gallons per day to produce 30m. gallons after blending with ground water to meet the domestic requirement until 1985. Tenders are expected to be invited later this year for three desalination units each producing 5m. gallons per day.

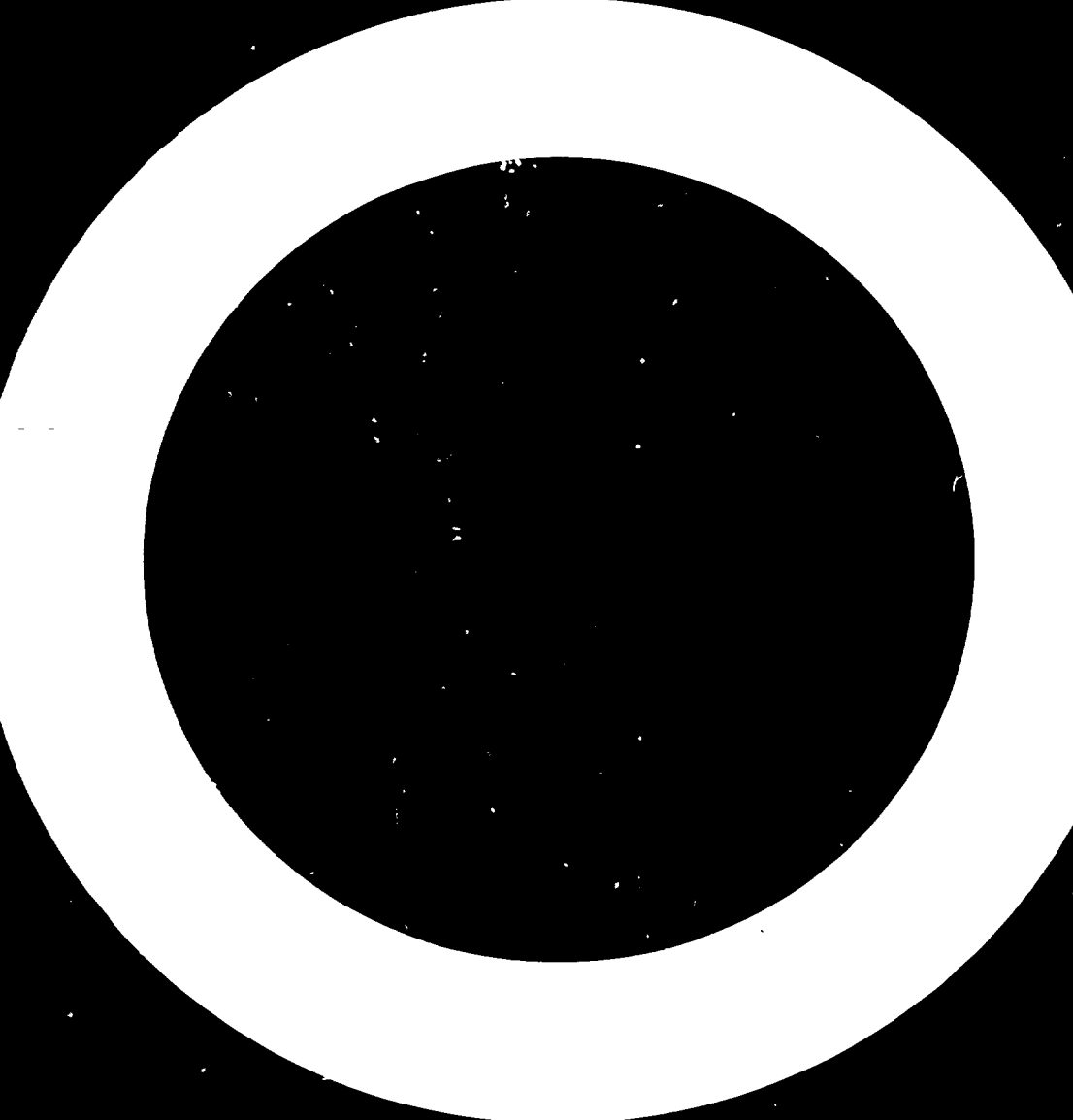
The country's overall water supply programme which also comprises extensive pipelaying pump installation, new control facilities and the construction of elevated and ground-level storage tanks, began in 1974 and is scheduled for completion in 1980, with the extension of the minor networks to follow. Total cost of the programme is estimated at \$125m.

1/

Some structural Bahrain problems in: The Financial Times,
London, Monday 3 April 1978. Special Report Bahrain.

5.2. Like the electricity and water programmes Bahrain's \$162.5m. sewage project is also moving ahead briskly. Feasibility studies began in late 1974 and the project is fast approaching completion with the main trunk line expected to be in place by mid-1979. It involves the installation of a complete system to serve all of Bahrain's metropolitan areas, including 30 pumping stations and a treatment plant to recycle sewage into water for agriculture. ^{1/}

^{1/} Some structural Bahrain problems in: The Financial Times, London, Monday 3 April 1978. Special Report Bahrain.



While Bahrain's economy is strongly integrated in the international market economy, its foreign trade reflects a differential and an imbalanced geo-economic spread. This is due to the underdevelopment of the economy, the lack of correspondence between its supplies and exports, the specialization in oil refining and exportation, and the dependence on manufactured goods, intermediate commodities, consumer goods and foodstuffs. The country's geographic location and its role in regional and international trade are other important determinants of the geo-economic spread of its foreign trade.

Bahrain's foreign trade suffers a structural deficit which has fluctuated between 1970 and 1978 and, at the end of this period, multiplied by more than four. Considering the non-oil sector, the value of its import (CIF) and its balance deficit have both multiplied by five over the period 1970 to 1978, in spite of an increase of more than six times the export value (FOB). Bahrain has boosted its non-oil imports, especially since 1973, as well as its non-oil exports. As a result, the deficit in non-oil balance followed a similar trend between 1973 and 1978.

The Bahrain trade balance showed a deficit of BD 72.6 or \$ 137 million in 1977; exports amounted to BD 730.1 million and imports to BD 802.7 million.

1. THE COMMODITY STRUCTURE OF FOREIGN TRADE

1.1. THE COMMODITY STRUCTURE OF EXPORTS

Integration in international markets appears also in Bahrain's sector of exports. From this angle oil extraction and refining continue to dominate Bahraini total exports. Price increases reinforce the value of this export item in total exports. This could be observed over the period 1976/78; mineral fuels, lubricants and related minerals including refined oil and Abu-Saafa exports represented more than 75 % of total exports in 1976 and almost 30 % in 1979.

Manufactured goods, including aluminium exports, represent a second but far less important item in Bahraini exports. In 1976 manufactured exports represented 14 % of total exports, compared with less than 12 % in 1978. This indicates that the growth of manufactured exports in value has not coped with the similar growth in the value of oil and oil products.

Machinery and transport equipment represent a third but very simple item in the commodity exports. In 1976 they represented almost 5.3 % of total exports, and only 4.1 % in 1978. Another category listed under Miscellaneous Manufactured Articles should be added here, valued at a little bit more than 3 % of total exports in 1976, and about 2.2 % in 1978. This category of exports is, in fact, a reexportation activity which is affected and will probably be more affected in the following years by the general development of the ports and trade infrastructures in the various neighbouring Gulf States.

Food and livestock represent a minor item in commodity exports; even if we add Beverages-and-Tobacco exports, they represent only 1.8 % of the 1976 exports, and only slightly more than 1.2 % in 1978. While Beverages and Tobacco have marginally increased, Food and Livestock exports declined in relation to the population growth of Bahrain's increasing food consumption.

1.1.2. THE OIL EXPORTS

Oil exports amounted to BD 572.5 million or \$ 1,475.5 million in 1977, while oil imports increased to BD 357.3 million or \$ 922 million. Consequently, the 1977 oil revenue of Bahrain rose to BD 180.7 million or \$ 455.7 million, including revenues from Abu Saafa production.

The Bahrain trade deficit in 1977 was related to a non-oil trade deficit of BD 287 million due to important public investments, chiefly in housing and electricity. The deficit in the balance of current accounts amounted to BD 49.2 million or \$ 125.3 million.

The oil sector has positively and constantly contributed to the country's foreign trade by reducing its global trade deficit. In fact, Bahrain has to import crude oil in order to fully utilize its refining capacity. Yet the almost tenfold increase in crude imports between 1970 and 1978 has been compensated, though not entirely, in the value of oil exports including Abu-Saafa oil. In 1978, the last year of the period considered, the ratio of oil exports to oil imports became roughly 1.7 against more than 2 in 1970. In fact, increases of the crude price have

affected and will affect the value of the country's crude imports, while raising that of its oil exports. This is not the case in the other oil-exporting countries of the Arab Gulf, whose domestic consumption and total refining capacity are below the quantity of their extracted and exported oil. Since Bahrain's oil production will continue to decline, one may expect a narrowing of the gap between the value of crude oil exports and oil imports. In the year 1979, crude imports totalled 476 million and exports 772.5. The ratio was already 1.6 in 1979. Such a decline in the ratio of exports to imports will consequently reduce the positive role played by exports of refined oil in total foreign trade. This is shown in the following table.

B. D. Million

Table No. 1

Summary of Foreign Trade

End of Period	NON - OIL *			OIL **		TOTAL		OVERALL TRADE BALANCE
	Import (C.I.F.)	Export (F.O.B.)	Balance	Import (Crude)	Export ***	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	106.5	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
1978 Q1	110.2	39.5	- 70.7	86.2	150.7	196.4	190.2	- 6.2
Q2	111.8	28.1	- 83.7	77.1	141.5	188.9	169.6	- 19.3
Q3	106.9	33.4	- 73.5	83.2	144.2	190.1	177.6	- 12.5
Q4	124.5	46.5	- 78.0	92.3	149.1	216.8	195.6	- 21.2
1979 Q1				106.5	162.1			
Q2				79.9	152.6			
Q3				131.3	207.5			
Q4				158.3	250.3			
1978 Dec.	44.5	6.6	- 37.9	33.2	54.7	77.7	61.3	- 16.4
1979 Jan.			35.6	50.9				
Feb.			32.6	53.0				
March			38.3	58.2				
April			37.2	54.2				
May			20.8	40.1				
June			21.9	58.3				
July			43.8	65.5				
Aug.			41.3	68.4				
Sept.			46.2	73.6				
Oct.			46.6	69.3				
Nov.			38.9	70.2				
Dec.			72.8	110.8				

Source * Statistics Directorate - Cabinet Affairs
 ** Oil Directorate - Ministry of Development and Industry
 *** Including Abu-Saafa

State of Bahrain, Bahrain Monetary Agency, Quarterly Statistical Bulletin, Vol. 5, Number 4, Bahrain, December 1979, Bahrain Monetary Bulletin, Department of Economic Research and Statistics, Table No.

Table No. 2
Summary of Foreign Trade

B. D. Billion

End of Period	NON		OIL*		Balance	OIL**		Export***	TOTAL		OVERALL BALANCE
	Import (C.I.P.)	Export (F.O.B.)	Import (Crude)	Export***		Import	Export				
1970	80.1	28.2	31.6	76.5	59.9	117.7	103.7	34.0			
1971	101.1	30.1	39.0	91.4	79.0	140.1	127.5	20.6			
1972	108.8	45.9	53.1	106.5	60.9	165.1	152.4	12.7			
1973	128.0	59.1	76.3	132.4	68.9	204.1	191.5	12.6			
1974	176.0	71.7	104.1	130.3	104.1	278.4	262.0	16.4			
1975	233.9	84.0	200.9	391.0	168.9	471.9	475.0	6.9			
1976	397.6	136.6	372.2	463.7	251.0	623.9	600.1	23.8			
1977	444.9	157.6	357.8	575.7	267.1	624.9	600.1	24.8			
1978	453.4	147.5	336.0	595.5	305.9	792.2	713.0	79.2			
1978											
Q1	110.2	32.5	85.2	190.7	70.7	196.4	190.2	6.2			
Q2	111.8	28.1	77.1	141.5	81.7	100.9	169.6	19.3			
Q3	106.9	33.4	81.2	148.2	71.5	190.1	177.6	12.5			
Q4	124.5	46.5	92.3	149.1	70.0	216.0	195.6	20.4			
1979											
Q1			106.5	162.1							
Q2			79.9	192.6							
Q3			131.3	207.5							
Q4			140.3	250.3							
1978	44.5	6.6	31.2	50.7	31.9	77.7	61.3	16.4			
1979											
Jan.			35.6	40.9							
Feb.			32.6	53.0							
March			38.3	51.2							
April			37.2	54.2							
May			20.3	46.1							
June			21.9	53.3							
July			41.8	61.5							
Aug.			41.3	68.4							
Sept.			45.2	73.6							
Oct.			40.8	69.3							
Nov.			35.9	76.2							
Dec.			75.9	110.0							

Source: * Statistics Directorate - Cabinet Affairs
 ** OII Directorate - Ministry of Development and Industry
 *** Including Abu-Safa
 State of Bahrain, Bahrain Banking Agency, Quarterly Statistical Bulletin Vol. 5, Number 4, Bahrain, December 1979, Bahrain
 Monthly Bulletin, Department of Economic Research and Statistics, Table No.

Oil Revenues

The second largest oil refinery in the Middle East is located in Bahrain. It is owned by Caltex. About 22.3 per cent of the input of the refinery comes from the Bahrain field, and the rest from Saudi Arabia via an underwater pipeline. The Bahrain field's input to the refinery has been declining slowly but steadily, by a total of about 17 per cent between 1972-1977. Meanwhile the Saudi input has risen by over 21.4 per cent over the same period. The input from the Bahrain field is expected to continue to decline, perhaps at a somewhat accelerated rate, but input of crude from Saudi Arabia will probably increase proportionately. Because of the blending of Bahrain and Saudi crude in the refining, for balance of payments purposes it is convenient to consider the refinery as non-resident, and the Bahrain oil as exported when it reaches the refinery. Thus the various types of government oil revenue and the expenditures in the economy of Caltex are export receipts.^{1/}

Oil revenue accruing to the economy consists of six different categories. They are: ^{2/}

- A. Abu Saafa field. This is now the largest source of oil revenue. The proceeds of the field are shared equally between Saudi Arabia and Bahrain.

- B. Bahrain field. This source consists of three categories:
 - a. Revenues from the 60 per cent share in Bahrain field owned by Bahrain. The Government sells this crude to BAPCO at 93 per cent of the posted price, 7 per cent being the assumed cost of production.
 - b. On the remaining 40 per cent of the field which is owned by Caltex, the Government imposes a royalty which is 20 per cent of the posted price on crude used to produce products for export, and 12.5 per cent on the crude producing products for the domestic market.

^{1/} More recently Saudi Arabia committed itself to provide a further amount of Saudi crude oil for the running of the refinery. This has been mentioned and appraised in Chapter 6 on the Oil Refining Industry.

^{2/} WORLD BANK: "Bahrain Current Economic Position and Prospects", June 28, 1978, Washington, Report No. 2058-BH, pp. 43-45

- c. Also on the 40 per cent owned by Caltex, the Government imposes an income tax equivalent to 35 per cent of the net profit from this portion of the Bahrain crude. The cost to the company includes the royalty mentioned in (2.2).

- C. The Government receives 55 per cent of the net profit of the refinery on products for export and the same percentage of tax on the price of products sold in the domestic market. For tax purposes, the net profit to the refinery is assumed to be 11 ¢ per barrel of throughput.

- D. The local expenditures of BAFCO. This is the local expenditure of the company for its production and refining operation.

Bahrain's major source of oil revenues is the Abu Saafa field. This source is estimated to provide Bahrain in 1977 about BD 91.6 million (\$ 237 million), or about 45 per cent of total income from the oil sector. This source has been growing rapidly and has more than compensated for the decline in production from the Bahrain field. According to 1978 and 1979 budget projections, Abu Saafa revenues are expected to be lower in those years than in 1977, but this may simply reflect conservative budgeting. Crude production in that field has fluctuated during the last five years. The second most important source of revenue is the sale of crude from the 60 per cent portion of the Bahrain field owned by the Government. After crude production costs, this is expected to yield about \$ 124 million in 1978 or about 24 per cent of total oil revenues. The third important source is the 35 per cent tax imposed on the net profit from the 40 per cent of the Bahrain field still owned by Caltex. This is likely to be about 16 per cent of Bahrain's 1978 oil receipts. The remaining oil revenues accrue from the 55 per cent tax on the refinery's net profit and on domestic sales of product.

The Government thinks about acquiring the remaining 40 per cent of the Bahrain field, but since the present take per barrel on this portion is only about 60 ¢ per barrel less than that from Bahrain's own 60 per cent share of the Bahrain field, the complete takeover of the field is not likely to have much effect on oil revenues. This takeover is in the final stage and could be announced soon.

There are obviously many imponderables in trying to forecast Bahrain's oil revenues. The most uncertain factors are the performance of the Abu Saafa field and changes, if any, in the posted price. The decline in Bahrain production, now estimated at about 6.5 per cent a year, seems fairly certain despite the continuing reinjection of natural gas. Future finds are not regarded as likely, although one source suggested that more exploration off the east coast would be warranted.

1.1.3. OTHER EXPORTS

With diminishing oil receipts, the ability of Bahrain to generate other exports (or substitute domestic production for imports) is a matter of great importance. Unfortunately, available statistics do not distinguish between exports and re-exports originating in Bahrain, nor give any indication of the value added in Bahrain which is exported. Port authorities estimate re-exports at 25 per cent of the volume of imports. Since foreign trade in alumina and aluminum is handled outside of the jurisdiction of the port authorities, we will subtract 40 per cent of imports from Australia,^{1/} the source of alumina for Bahrain, from total imports, and also subtract exports of aluminum from total exports in making our calculation of the trend in exports of Bahrain origin. It would be very hazardous to draw any conclusions from such a rough exercise as far as year-to-year data are concerned. However, the difference between 25 per cent ^{2/} of imports, and exports (both excluding oil products and aluminum) appears to be declining in real terms. In other words, re-exports are declining as a percentage of total exports. However, another estimate is that about half of exports (other than POL and aluminum) consist of re-exports. On this basis exports of Bahraini origin (other than oil and aluminum) have increased in real terms by over 13 per cent a year since 1972.

^{1/} Middle East Economic Digest, March 1978, p. 29 of supplement on Bahrain.

^{2/} Using this percentage assumes of course that the composition of retained and of total imports were the same. This is likely to be less than for a single year than over a term of years.

The recent evolution of the export of commodities is shown in the following table.

1.1.4. Commodity exports and re-exports to Arab countries

Saudi Arabia, Dubai and Abu Dhabi (the United Arab Emirates), Kuwait and Qatar are the main Arab importers from Bahrain.

Textiles and clothings, mainly exported to Saudi Arabia, constitute the first commodity in the exports and re-exports from Bahrain to Arab countries.

Cereals and cereal products constitute the second item, to which tobacco and cigarettes could be added within the commodity range of Bahraini exports to Arab countries.

Electric machinery constitutes a third category, followed by intermediate and semifinished products, namely iron and steel.^{1/}

While Bahrain is strongly integrated in West European, Japanese and U.S. markets, with its trade with the Far East soaring, its foreign trade with the Arab countries is very limited. Arab countries range far behind other partners in Bahraini imports (Saudi Arabia and Lebanon ranged 16th and 17th in the list of exporters to Bahrain in 1974). On the other hand, due to the value of their exports and re-exports to Bahrain, its neighbouring Arab Gulf countries were among the first nine importers from Bahrain (Saudi Arabia was second, Dubai third, Kuwait fifth, Qatar 8th, Abu Dhabi ninth in 1974).

^{1/} Export and Re-export Trade to Arab States in 1974 (value in 1000 Bahraini dinar), non-numbered table, p. 24, in "A Global Study of the General Economic Situation in the State of Bahrain", text in Arabic.

Table 4 : Composition of Non-Oil Exports (f.o.b.)^{1/}
(In millions of Bahrain dinars)

	1972	1973	1974	1975	1976	1977
Food and live animals	6.5	7.6	7.9	4.9	8.2	8.4
Beverages and tobacco	0.9	1.3	1.5	1.9	2.6	2.4
Manufactures, classified chiefly by material	22.2	34.3	39.7	47.0	64.0	66.4
Machinery and transport equipment	6.0	4.8	8.7	13.1	35.1	44.2
Miscellaneous manufactured articles	9.0	9.5	11.7	15.1	22.9	32.1
Other	1.3	1.6	2.2	2.0	3.8	4.1
Total	<u>45.9</u>	<u>59.1</u>	<u>71.7</u>	<u>84.0</u>	<u>136.6</u>	<u>157.6</u>

Sources: Ministry of Finance and National Economy, and Statistical Bureau.

^{1/} Exports and re-exports, f.o.b.; excludes gold and silver.

Table No. 3

Exports by Commodity According to SITC

B.D. Million

CODE NO.	1976	1977	1978	1	2	3	4	1	2	3	4
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
0 - Food and Livestock	8.2	8.5	6.1	2.6	2.3	1.6	2.0	1.8	1.4	1.1	1.8
1 - Beverages and Tobacco	2.6	2.4	2.8	0.4	1.3	0.3	0.4	0.7	0.6	0.9	0.6
2 - Crude and Inedible Materials Exc. Fuels	1.6	0.7	2.0	0.2	0.2	0.2	0.1	0.1	0.3	0.4	1.2
3 - Mineral Fuels, Lubri- cants and Related Minerals*	464.4	572.0	585.9	139.4	146.7	140.7	146.1	150.8	141.7	144.3	149.1
4 - Animal and Vegetable Oils and Fats	0.1	-	0.1	-	-	-	-	-	-	-	0.1
5 - Chemicals	1.3	2.7	3.2	1.1	0.6	0.5	0.5	0.5	0.8	0.7	1.2
6 - Manufactured Goods Classified by Material +	64.0	66.4	85.4	18.9	24.5	7.9	15.1	22.6	15.1	20.2	27.5
7 - Machinery and Trans- port Equipment	35.1	44.2	30.2	14.4	17.2	5.4	7.2	9.3	4.8	6.6	9.5
8 - Miscellaneous Manu- factured Articles	22.9	32.1	17.3	12.1	7.3	5.9	6.8	4.4	4.9	3.4	4.6
9 - Unclassified Groups and Actions	0.1	0.2	-	0.1	-	0.1	-	-	-	-	-
TOTAL	600.3	730.1	733.0	189.2	200.1	162.6	178.2	190.2	169.6	177.6	195.6

* Includes Refined Oil Exports and Abu-Saafa

+ Includes Aluminium Exports

Source: Statistics Directorate - Cabinet Affairs

Oil Directorate

Ministry of Development and Industry

State of Bahrain, Bahrain Monetary Agency, Quarterly Statistical Bulletin; Vol. 5, Number 4, Bahrain, December 1979, Bahrain Monetary Bulletin, Department of Economic Research and Statistics, Table No. 21.

1.2. THE COMMODITY STRUCTURE OF IMPORTS

Bahrain's economy is strongly dependent on foreign markets for its supply. Its oil refinery is more a relay for the processing and exportation of oil rather than a fully and locally fed plant. Consequently, the refining sector is responsible for the imports of mineral fuels, lubricants and related minerals including mainly crude oil, which constitute the main item in the country's commodity imports.

In 1979 this item represented almost 40 % of total imports. Machinery and transport equipment constitute a second major item in imports, with the value amounting to almost half of the first category of imports mentioned above.

As Bahrain has developed processing industries, its imports of manufactured goods classified by material and including mainly alumina represent the third important import item, a little more than one eighth of total imports. Other manufactured articles, grouped under Miscellaneous, accounted for a little less than one twelfth of total imports (1978 figures also).

Food and Livestock represent a small but significant item of the commodity imports to which Beverages and Tobacco could be added, amounting together to another twelfth of total imports.

1.2.1. INCREASING DEPENDENCE ON AGRICULTURAL AND FOOD IMPORTS

Using another classification, the U.S. Department of Agriculture gives the figures of Bahrain's food imports. They rose considerably during the period 1970-1977. According to this U.S. Department, the value of these food imports grew by more than 194 per cent, rising from US\$ 30.6 million in the first year to US\$ 90 million in the last year:

Bahrain's Agricultural Imports 1970 - 1977 ^{1/}

1970	1975	1976	1977	Total Change in per cent 1970 - 1977	Annual Change average in per cent
30.6	64.3	74	90	+ 194 %	+ 64.7 %

This means that Bahraini imports of agricultural and food products increased at an average rate of 64.70 per cent per year during the period considered. ^{1/}

The reasons for the increase in demand are population growth and rising standards of living. Since agriculture has limited potentialities, it seems to be certain that Bahrain's dependence on food imports will continue to increase.

Referring again to the imports of food and livestock during the years 1976 to 1978, forwarded by the Bahraini statistical authorities (according to SITC), there has been a general growth in imports. Assuming that this trend is structural and will therefore be constant, it could be concluded that the import of crude oil, transport equipment, intermediate products and manufactured goods will continue to stimulate imports, relatedly with a constant deficit in food and livestock. The movement of imports between 1976 and 1978 is shown in the following table.

^{1/} Department of Agriculture, Washington;
Middle East Economic Digest, Vol. 22, No. 30, 28 July 1976

Table 5: Composition of Non-Oil Imports (c.i.f.)^{1/}

(In millions of Bahrain dinars)

	1972	1973	1974	1975	1976	1977
Food and live animals	14.9	19.6	24.9	24.5	39.1	42.3
Beverages and tobacco	2.9	4.0	4.6	6.0	8.6	10.2
Chemicals	13.1	16.0	14.8	18.5	22.0	30.9
Manufactured goods classified chiefly by material	25.7	29.2	48.1	57.0	96.1	106.3
Machinery and transport equipment	30.5	36.1	52.5	66.0	155.6	161.0
Miscellaneous manufactured articles	15.7	18.4	23.5	33.0	49.6	76.3
Other categories	3.0	4.7	7.6	7.8	16.6	17.4
Total	106.8	128.0	176.0	232.9	387.6	441.0

Source: Ministry of Finance and National Economy, and Statistical Bureau

^{1/} Excludes gold and silver.

Table No. 4

Imports by Commodity According to SITC

B. D. Million

CODE NO.	1976	1977	1978								
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
0 - Food and livestock	39.4	42.9	51.2	10.5	12.6	9.3	10.7	10.7	10.8	11.3	18.4
1 - Beverages and Tobacco	8.6	10.2	10.9	2.9	3.5	1.8	2.0	2.1	3.4	2.6	2.8
2 - Crude and Inedible Materials Excluding Fuels	8.7	9.1	9.1	2.5	2.4	2.5	1.7	2.7	1.8	1.8	2.8
3 - Mineral Fuels, Lubri- cants and Related Minerals*	279.6	365.4	345.7	90.4	88.5	87.7	98.8	87.2	80.2	85.0	93.3
4 - Animal and Vegetable Oils and Fats	0.6	0.6	1.1	0.1	0.2	0.2	0.1	0.2	0.3	0.3	0.3
5 - Chemicals	21.5	30.9	39.0	8.0	8.1	7.0	7.8	8.7	8.0	7.9	14.4
6 - Manufactured Goods Classified by Mate- rial +	96.2	106.2	101.7	29.2	28.6	23.3	25.1	24.7	26.9	24.6	25.5
7 - Machinery and Trans- port Equipment	155.6	161.1	171.4	53.0	37.5	33.9	36.7	45.9	42.0	42.5	41.0
8 - Miscellaneous Manu- factured Articles	49.6	76.3	61.8	22.8	18.1	16.2	19.2	14.1	15.5	14.1	18.1
9 - Unclassified Groups and Actions	-	-	0.3	-	-	-	-	0.1	-	-	0.2
TOTAL	659.8	802.7	792.2	219.4	199.5	181.7	202.1	196.4	188.9	190.1	216.8

* Includes Crude Oil Imports

+ Includes Alumina Imports

Source: Statistics Directorate - Cabinet Affairs

Oil Directorate

Ministry of Development and Industry

State of Bahrain, Bahrain Monetary Agency, Quarterly Statistical Bulletin; Vol. 5, Number 4, Bahrain, December 1979, Bahrain Monetary Bulletin, Department of Economic Research and Statistics, Table No. 20.

2. THE GEO-ECONOMIC SPREAD OF FOREIGN TRADE

2.1. THE GEO-ECONOMIC SPREAD OF EXPORTS

The share pattern of Bahraini exports among different economic groups is very different from that of Bahraini imports already exposed.

2.1.1. It is the group of Arab countries, mainly Saudi Arabia, followed far behind by the United Arab Emirates, then Kuwait and Qatar, which are the first importers from Bahrain. In 1976 Bahrain exports to Arab countries represented some 6.2 % of total exports. However, the share of Arab countries in total exports fell to around 42 % in 1978. Since Bahrain has been mainly a re-exporting center, this category of Bahraini exports mingles exports and re-exports. As Saudi Arabia has developed its own ports and increased direct imports, Bahrain's export to Saudi Arabia fell by more than 200 % between 1976 and 1978. On the other hand, Bahraini exports to the United Arab Emirates and to Kuwait have experienced a similar increase between 1976 and 1978, as shown in the following table. Although Bahrain will continue to be a regional exporting center, the development of ports and other import infrastructures, mainly in Saudi Arabia and the United Arab Emirates, could reduce the relative weight of re-exporting activity in Bahrain's foreign trade. The lack of commodity classification of the Bahraini exports to Arab countries makes it difficult to project this category of exports over the next decade, notwithstanding future changes in the economic and import policies of these different countries.

Exports According to Country of Destination (1)

Country	1976	1977	1978	1977		1978			
				Q3	Q4	Q1	Q2	Q3	Q4
<u>Arab Countries</u>	82236	99476	62338	11771	18015	16017	12741	14100	19460
Kuwait	3164	5255	3127	1196	1738	1397	153	2345	2777
Saudi Arabia	68219	50511	31931	10626	13943	9725	6097	3561	7548
Lebanon	34	31	5	-	47	-	1	5	-
United Arab Emirates	6117	5592	17518	925	754	4406	4265	2577	6270
Qatar	2885	3559	1572	434	401	345	509	298	420
Oman	132	144	189	56	59	27	26	50	86
Other	1685	4325	2596	534	1033	137	236	264	2359
<u>African Countries</u>	8	1	-	-	-	-	-	-	-
Kenya	-	-	-	-	-	-	-	-	-
Tanzania	-	-	-	-	-	-	-	-	-
Other	8	1	-	-	-	-	-	-	-
<u>Asian Countries</u>	40683	43141	73874	5327	12216	20745	14035	17972	26122
Japan	25685	23511	51773	387	3204	17933	9724	10390	13731
Thailand	109	362	-	-	-	-	118	-	250
Taiwan	2044	3159	5036	342	354	169	710	1476	2531
China	7246	5073	4	1550	790	4	-	-	-
Singapore	33	126	818	18	20	-	4	-	814
Pakistan	198	470	238	11	201	1	11	145	81
India	109	653	2345	546	99	1141	17	1	1186
Iran	5157	14020	13672	1935	2005	1497	2855	3622	5698
Indonesia	35	49	157	-	-	-	-	-	157
Hong Kong	18	68	9	1	59	-	-	7	2
Other	3	15	4449	7	4	-	596	2331	1522
<u>European Countries</u>	3656	2840	218	253	515	104	92	9	13
Belgium	-	11	6	-	-	-	-	-	6
Denmark	-	-	4	-	-	3	-	-	1
West Germany	54	69	4	-	-	2	2	-	-
France	178	135	1	-	1	-	1	-	-
Sweden	-	-	-	-	-	-	-	-	-
Netherlands	2227	602	59	10	78	61	3	-	-
United Kingdom	4241	262	114	83	107	36	53	9	6
Other	1956	1762	20	160	329	2	13	-	-
<u>American Countries</u>	2462	3644	613	1303	499	423	40	121	29
U.S.A.	2022	3644	612	1303	499	423	39	121	29
Canada	-	-	1	-	-	-	1	-	-
Other	440	-	-	-	-	-	-	-	-
<u>Oceanic Countries</u>	23	20	2	1	1	-	-	2	-
Australia	23	20	-	1	1	-	-	1	-
New Zealand	-	-	-	-	-	-	-	1	-
Other	-	-	-	-	-	-	-	-	-
<u>Ships Supplies</u>	2529	3426	4755	1317	378	1966	1124	834	721
<u>Aircrafts Supplies</u>	-	43	745	-	-	279	-	332	130
TOTAL	136604	157602	147345	21972	32164	39554	23095	33421	46475

Source: Statistics Directorate
Cabinet Affairs

(1) Non - Oil

State of Bahrain, Bahrain Monetary Agency, Quarterly Statistical Bulletin: Vol. 5, Number 1,
Bahrain, December 1979, Bahrain Monetary Bulletin, Department of Economic Research and
Statistics, Table No. 23.

Table 6: Destination of Non-Oil Exports (f.o.b.)^{1/}
(In millions of Bahrain dinars)

	1972	1973	1974	1975	1976	1977
Saudi Arabia	16.5	16.6	22.3	25.6	68.2	80.5
Qatar	0.3	1.5	1.6	2.2	2.9	3.6
Iran	1.9	1.9	2.5	4.3	5.2	14.0
Kuwait	2.1	1.2	2.6	1.6	3.2	5.3
United Arab Emirates	2.8	4.0	5.0	11.3	6.1	5.6
Oman	0.4	0.8	0.9	1.0	0.1	0.1
United States	1.0	1.2	0.5	1.9	2.0	3.6
Japan	8.6	23.9	25.1	17.8	25.7	23.5
United Kingdom	0.9	0.9	2.6	1.9	4.2	0.3
Other ^{2/}	11.4	7.1	8.6	16.4	19.0	21.1
Total	<u>45.9</u>	<u>59.1</u>	<u>71.7</u>	<u>84.0</u>	<u>136.6</u>	<u>157.6</u>

Source: Ministry of Finance and National Economy, and Statistical Bureau

^{1/} Exports and re-exports, f.o.b.; excludes gold and silver.

^{2/} Includes aluminum exported by ALEA to countries other than Japan.

BAHRAIN'S TRADE WITH MAJOR PARTNERS (1976) ^{1/} (in millions of each country's currency)

	<u>Exports</u>	<u>Imports</u>	<u>Balance</u>
United Kingdom (£)	89.628	30.146	59.482
France (FF)	139.1	8.0	131.1
West Germany (DM)	156.021	29.775	126.246
Belgium-Luxemb. (francs)	330.982	91.825	239.157
Soviet Union (roubles)	-	-	-
Poland (zloty)	n.a.	n.a.	-
Hungary (forint)	-	-	-
Yugoslavia (dinars)	-	-	-
Rumania (lei)	n.a.	n.a.	-
United States (\$)	229.2	29.6	249.6
Canada (\$Can)	1.474	0.001	1.473
India (rupees)	166651.8	144987.5	21,664.3
Pakistan (rupees)	173	137	36
Japan (yen)	32,212.3	67777.0	-35,564.7
South Korea (\$)	40.806	0.186	40.620
Singapore (\$Sing)	70.621	240.446	-169.825
Hong Kong (\$HK)	75	68	7
Indonesia (\$)	n.a.	n.a.	-
Thailand (baht)	31.561	223.790	-192.229

^{1/} 112 MEED Annual Review 31 December 1977

- 2.1.2. Asian countries rank second in Bahrain's exports and have multiplied by almost two between 1976 and 1978, with their share in total Bahraini exports boosting from 20.3 % to 53.1 %.

Within this Asian group, Japan predominates, followed by Iran and Taiwan. Development of Bahraini imports from Japan and the other Asian countries stimulates a counter-movement of increasing exports from Bahrain to those countries. The new gas deals and increased crude sales will sustain a constant and stronger rise in Bahraini exports to Japan and its other Asian partners.

- 2.1.3. The European countries (United Kingdom, the Netherlands, and others) are responsible for the third category of Bahraini exports. Already small, its value dramatically fell from 6.31 % to less than 0.15 %. Considering the predominance of European exports to Bahrain, as seen above, the minor and falling share of European countries in Bahraini exports proves that the geo-economic spread of Bahraini exports does not cope with that of its imports. Although this phenomenon applies also to Arab countries and, to a lesser extent, to Asian countries, the déphasage is too big and striking in the case of Bahrain's trade with European countries. It could be explained by the contrast, a structural phenomenon, between the volume and commodity structure of Bahraini imports from those countries and those of its exports to them. As a matter of fact, the Emirate imports substantial and increasing amounts of manufactured goods, transportation equipment, consumer goods and foodstuffs, but can export to those countries only limited aluminium and oil products. Since there are no prospects for significant increases in oil output, and as the new gas exports are mostly destined to Japan, Bahrain is not likely to improve its dramatic trade deficit with Western Europe, unless for other reasons it suddenly decides to shift its sources of supply to another group of developed countries. However, due to political considerations it is unlikely that Bahrain will reduce its trade with Western Europe substantially.

- 2.1.4. Exports to the United States of America have evolved between 1976 and 1978 to the same extent as Bahraini exports to European countries. The share of Bahraini exports to the USA fell from 1.6 % in 1976 to 0.4 % in 1978.

Concluding this, the export spread of Bahraini trade during the period considered reflects an increasing orientation towards Asia, mainly Japan; this is likely to continue and further develop during the next decade, with an increasingly important role of Japan concerning the Emirate's imports and exports.

BAHRAIN'S TRADE WITH THE UNITED KINGDOM (1974 - 1978) 1/

	<u>Exports</u>	<u>Imports</u>	<u>Balance</u>
1978	33,694	20,345	13,349
1975	60,947	17,849	43,098
1976	89,628	30,146	59,482
1977	113,777	13,673	100,104
1978	119,855	34,704	85,151
Total	417,901	116,717	301,184

1/ 50 MEED 23 February 1979

BAHRAIN'S TRADE WITH THE USA 1977-1978 ^{1/}

	<u>Exports, including re-exports</u>	<u>Imports</u>
1977	50.1	14.7
1978	52.3	8.4

^{1/} US Department of Commerce

2.2. THE GEO-ECONOMIC SPREAD OF IMPORTS

2.2.1. Over the period 1974-1978 Western Europe has strongly reinforced its predominant position in Bahraini imports. The share of the main West European countries (EEC and Scandinavian countries) jumped from 28.1 % of total imports in 1974 to 40.5 % in 1978. The United Kingdom and West Germany are the main beneficiaries and have consolidated their respective positions, with the United Kingdom far ahead (40.6 % of total imports in 1974 and 19.9 % in 1978).

2.2.2. As to the USA, its position has substantially declined, from 18.1 % of Bahrain's total imports in 1974 to 11.8 % in 1978. However, due to the commodity structure of the imports from the USA, it is unlikely that this last year's trend will continue.

2.2.3. Japan has strengthened its position by bringing its share of Bahraini imports from 13.2 % in 1974 to 14.4 % in 1978. The growth of Bahraini imports from other Asian countries seems to be behind this moderate increase in Japanese supplies to Bahrain, as is shown in the following table.

Table 7: Origin of Non-Oil Exports^{1/}

(In millions of Bahrain dinars)

	1972	1973	1974	1975	1976	1977
United Kingdom	21.2	24.1	25.7	42.8	68.4	67.0
Japan	14.9	15.1	23.2	27.4	53.7	68.9
United States	13.0	17.6	31.8	36.3	57.4	53.3
China, People's Republic of	6.6	7.6	11.2	14.4	15.2	24.8
Netherlands	2.4	2.5	3.4	7.4	10.6	10.0
Germany, Federal Republic of	4.7	5.2	8.2	11.5	24.8	26.2
Italy	1.9	3.9	5.7	11.5	6.3	14.5
India	2.8	3.5	6.5	5.8	13.4	13.8
Iran	1.9	2.2	3.2	2.5	2.3	2.9
Pakistan	2.0	3.6	4.8	2.0	5.1	3.0
Hong Kong	2.5	2.8	3.1	3.8	7.3	10.0
Australia	10.5	13.2	10.1	12.3	20.3	23.0
Saudi Arabia	1.1	1.9	2.6	5.1	5.5	3.8
Switzerland	1.1	1.2	1.3	1.7	1.9	3.7
Lebanon	1.5	2.2	2.4	2.0	1.2	1.0
China, Republic of	2.1	2.6	3.0	4.2	8.4	10.1
Belgium	1.1	0.9	2.2	2.7	2.8	4.3
Denmark	1.3	1.3	1.9	2.6	4.5	5.1
France	1.6	2.4	3.1	7.3	9.5	11.3
Singapore	1.6	1.9	2.6	5.0	9.3	11.2
Kuwait	1.1	1.1	1.7	2.4	3.5	2.8
United Arab Emirates	0.9	1.4	1.6	1.9	1.4	8.6
Other countries	9.1	9.7	16.4	20.3	52.3	48.5
Total	106.8	129.0	176.0	232.0	387.6	444.0

Source: Ministry of Finance and National Economy, and Statistical Bureau.

1/ On a c.i.f. basis. Data exclude gold and silver.

WORLD BANK Report No. 2058-BR, "Bahrain, Current Economic Position and Prospects", Washington, June 28, 1978 (Table 3.6).

Table No. 4

Imports according to Country of Origin*

B. D. Thousand

Country	1976	1977	1978	1979		1978			
				Q3	Q4	Q1	Q2	Q3	Q4
Arab Countries	20061	17632	28132	5039	3591	6406	1210	2162	2733
Kuwait	1641	2343	3097	599	352	1333	556	941	1251
Saudi Arabia	5283	3342	4286	664	931	1775	609	1077	1225
Lebanon	1220	1010	1561	287	252	391	383	513	369
United Arab Emirates	7445	3536	10120	2399	1389	2189	1735	3035	2911
Oman	185	395	700	173	47	46	218	176	230
Qatar	1525	1003	1574	131	164	774	316	343	136
Other	745	1001	2964	233	253	298	343	170	1953
African Countries	1051	1680	1043	351	721	680	100	161	39
Kenya	475	665	313	113	230	200	37	20	56
Tanzania	146	193	33	126	-	32	-	1	-
Other	430	822	697	107	464	448	63	140	43
Asian Countries	137666	163776	146412	32912	35612	31074	35515	34292	45531
Japan	53737	68941	65260	12049	16851	13787	16017	16311	19125
Thailand	919	1122	2795	368	234	429	561	502	1201
Taiwan	3390	10394	5551	2149	1112	986	1639	1257	1669
China	15205	24591	3138	4862	4646	2303	1965	1710	2160
Singapore	3296	11166	9560	3112	2176	2236	2995	2076	2553
Pakistan	5091	3038	3357	203	202	249	170	410	2528
India	13350	13337	12337	3137	3136	3719	3549	1102	4027
Iran	2269	2351	5317	817	815	562	530	3433	677
Hong Kong	7278	10231	9036	2131	2095	2750	1610	2433	2243
South Korea	13999	12231	19297	2228	3011	2531	5189	3427	5150
Other	3129	5321	5704	1034	1034	1522	1210	1474	1498
European Countries	143637	180844	197914	41535	44216	55049	47872	43552	51761
Austria	2379	2220	1320	453	395	576	254	429	561
Belgium	2571	4336	4421	1306	378	1135	1359	913	1014
Denmark	1481	5099	3682	1061	641	816	1112	364	370
West Germany	24345	26179	36754	5873	4524	16114	5993	5331	9252
France	3460	11312	10823	1897	2623	2776	3059	2003	2935
Italy	3608	14611	17590	3702	3958	3263	2460	3221	3643
Netherlands	10590	9969	9383	1752	2451	1951	2767	2988	1677
Switzerland	1888	3452	5324	853	1178	1167	1894	1053	1205
United Kingdom	68169	87036	90132	20425	23043	21168	24977	22175	21362
Other	15063	16650	17930	4216	4320	6083	3942	1219	3886
American Countries	59500	66489	55766	10464	14110	9917	17333	16929	11032
U.S.A.	57396	53269	53651	9737	13713	9686	17157	16313	10495
Canada	726	302	477	140	64	86	151	123	117
Guatemala	850	1946	1017	463	185	126	197	452	242
Brazil	176	382	63	112	141	11	28	16	3
Other	352	90	558	11	7	9	305	25	220
Oceanic Countries	20726	24503	26907	5565	7623	7112	6228	5799	7763
Australia	19911	22989	25592	5228	7362	6745	5353	5600	7339
New Zealand	790	1223	1314	261	261	367	370	192	379
Other	25	291	1	16	-	-	-	1	-
TOTAL	337621	444974	453244	95866	106196	110233	111773	106904	124429

Source: Statistics Directorate
Cabinet Affairs
* Non - Oil

State of Bahrain, Bahrain Monetary Agency, Quarterly Statistical Bulletin; Vol. 5, Number 1.
Bahrain, December 1979, Bahrain Monetary Bulletin, Department of Economic Research and
Statistics, Table No. 22.

2.2.4. Australia has almost maintained its position by providing 5.7 % of Bahraini imports in 1974 and 5.6 % in 1978. Unless Bahrain moves to another supplier for the feeding of its aluminium smelter, it is unlikely that a significant shift in Australian-Bahraini trade will occur in the following years.

2.2.5. The main Arab suppliers of Bahrain, Saudi Arabia and Lebanon have had their shares already extremely limited; they fell from 1.5 % for Saudi Arabia and 1.4 % for Lebanon, a subtotal of 2.9 % in 1974, to 1.0 % for Saudi Arabia and 0.3 % for Lebanon, subtotalling to 1.3 % in 1978. This confirms that, far from integrating the Arab economic region, Bahraini economy has increased its disintegration from the latter, apart from an increasing integration in developed market economies, with a slight trend to develop further relations with Asian countries. This is shown in the following table.

Table No. 5

Imports According to the Main Country of Provenance

Country	1974	% share	1975	% share	1976	% share	1977	% share	1978	% share
United States	31728	18.1	36322	15.0	57396	14.8	53269	12.0	53651	11.8
United Kingdom	52726	14.6	42810	18.4	68369	17.6	87036	19.6	90132	19.9
Japan	23177	13.2	27351	11.8	53737	13.9	68944	15.5	65260	14.4
Australia	10077	5.7	12338	5.3	20336	5.2	22989	5.2	25592	5.6
West Germany	8256	4.7	11478	5.0	24845	6.4	26179	5.9	36754	8.1
India	6506	3.7	5756	2.5	13399	3.4	13837	3.1	12397	2.7
Pakistan	4768	2.7	2014	1.0	5094	1.3	3038	0.7	3357	0.7
Netherlands	3410	1.9	7424	3.2	10500	2.7	9269	2.2	9333	2.1
France	3173	1.8	7268	3.1	9160	2.4	11312	2.5	10833	2.4
Taiwan	3153	1.8	2452	1.1	2269	0.6	2851	0.6	5317	1.2
Hong Kong	3141	1.8	3114	1.7	7278	1.9	10231	2.3	9036	2.0
Permana Taiwan	3043	1.7	4225	1.8	8360	2.1	10324	2.3	9551	2.2
Italy	2720	1.6	11499	5.0	8808	2.3	14611	3.3	17580	3.9
Singapore	2756	1.6	4932	2.2	9296	2.4	11166	2.5	9560	2.1
Saudi Arabia	2593	1.5	5054	2.2	5483	1.4	3344	0.8	4236	1.0
Tokyo	2598	1.4	2007	1.0	1220	3.1	1010	0.2	1561	0.3
Belgium	2248	1.3	2670	1.3	2751	0.7	4336	1.0	4421	1.0
Denmark	1849	1.1	2607	1.2	4483	1.2	5099	1.1	3632	0.8
Switzerland	1302	0.7	1677	0.7	1898	0.5	3432	0.8	5324	1.2
Sweden	732	0.4	2942	1.3	3160	0.8	2611	0.6	3956	0.9
South Korea	553	0.3	833	0.4	18999	4.9	12381	2.8	19297	4.3
Other Countries	21133	12.0	18327	8.1	9267	0.5	42444	9.5	48221	10.6
TOTAL	175377	100	242900	100	4	100	444974	100	453314	100

Source: Statistics Directorate - Cabinet Affairs

State of Kuwait, Kuwait Monetary Agency, Quarterly Statistical Bulletin; Vol. 5, Number 4, Kuwait, December 1979, Kuwait Monetary Bulletin, Department of Economic Research and Statistics, Table No. 24.

CHAPTER 11

EVOLUTION OF THE MONETARY AND BANKING SYSTEM

Banking in Bahrain has now become one of the country's major industries in terms of people employed and local value added, not to mention the attention it has drawn worldwide to one of the smallest oil producing states. ^{1/}

It is doubtful whether the people sent by the Eastern Bank in 1921 to open the first bank branch in Bahrain could have foreseen that this would happen, although symbolically the opening of that branch did represent the beginning of banking services in the Gulf.

For many years the Eastern Bank remained alone on the island witnessing the change from pearl fishing to oil as the key economic industry and the gradual growth of Bahrain as a communications centre in the Second World War. After the end of the war, economic activity grew slowly and the British Bank of the Middle East appeared on the scene, and developed particularly strong connections with the trading community. During the 1950s the National Bank of Bahrain was established as a commercial bank owned by Bahraini nationals including the Government.

The main business of these early banks was to finance the import and export trade and to provide deposit and current account services to avoid the need for excessive use of cash in the community. It is a measure of their success that the ratio of Bahraini notes in circulation to deposits in the banks has always been quite low. Simple as the services of the banks might now seem to be, they met the needs of the community, and if surplus funds were automatically deposited in sterling at Head Office, this then reflected the absence of any alternative investment opportunity.

1/ MOCRE, Alan E.: "The Development of Bahrain's Financial Markets", October 22-23, 1978. Bahrain, Finance and Industrial Development in the Gulf, October 22-23, 1978, pp. 18-32



Bahrain is singularly well supplied with banking services, although only four are strictly Bahraini banks. They are The National Bank of Bahrain, and Al-Ahli Commercial Bank (100 per cent Bahraini owned and incorporated in Bahrain), Bank of Bahrain and Kuwait (50 per cent Bahraini owned and incorporated in Bahrain) and the Continental Bank Ltd. (50 per cent Bahraini owned, but incorporated outside Bahrain). The National Bank of Bahrain does about half the domestic commercial banking business in Bahrain. There are also 16 foreign banks registered to do a Full Commercial Banking (FCB) function in Bahrain, 8 of which also have an offstore banking business (OBUS). In addition there are 33 international banking institutions which have opened offices as OBUS, and 7 more were licensed recently, but have not yet begun operation. Thus, in all, there are now 53 institutions carrying on some form of banking function in Bahrain. ^{1/}

^{1/} WORLD BANK: Report No. 2058-BH "Bahrain Current Economic Position and Prospects", June 28, 1978

1. THE MONETARY SYSTEM

Until the mid-1960s the currency in use in the Gulf was the Indian rupee, later separately identified as the Gulf rupee in an effort to prevent an outflow of exchange position in India itself. The use of a currency that was at the time rather suspect and issued by a country with no direct connection with the Gulf States was clearly unsatisfactory, and first of all Kuwait in 1962 and then Bahrain in 1965 issued their own currencies to replace the Gulf rupee. Bahrain chose the simpler way of making its dinar worth to rupees^{1/} But prices are still occasionally quoted in rupees. | Currency Boards were established to control the supply of the new currency, and they were required to maintain 100% cover in foreign exchange to prevent the creation of unlimited amounts of banknotes. The Currency Board quoted daily rates for buying and selling banknotes against sterling which therefore broadly established the exchange rate for the dinar, although dealings were rather cumbersome given the requirement to bring along your wheelbarrow to deliver or receive the notes, and most dealings would take place directly between banks, one of whom would be lucky enough to handle the collection of the oil revenues.

Originally, the sterling rate was fixed, and the dinar was termed Shadow Sterling, which made risk-free investment of surplus funds in London an easy matter. However, the devaluation of the pound sterling in 1967 caused severe losses to the Currency Board and Commercial Banks as the dinar did not devalue. Therefore, the rate calculation was in fact based on the dollar, although published as the sterling rate. However, the dinar retained its gold value when the dollar devalued in terms of gold in 1971 and 1973, which once again caused losses to the community.

^{1/} Kuwait chose a unit equal to 2 1 or 13.33 rupees, which must have caused conversion problems in the days before everyone had pocket calculators.

1.1. INSTITUTIONAL FRAMEWORK OF THE MONETARY SYSTEM ^{1/}

The Bahrain Monetary Agency replaced the Currency Board on December 5, 1973. ^{1/} The BMA has the usual powers of a central bank, but has introduced controls rather slowly. This was in accordance with the intent of the law. The lack of outstanding public debt (until very recently) ruled out open market operations.-

^{1/} A relic of the former system remains. The currency cover must at least equal currency in circulation. This is hardly likely to be a constraint, since at the end of 1973 the net foreign assets of the banking system were 3.4 times the currency circulating outside the banks.

in: WORLD BANK: Report No. 2053-BH "Bahrain Current Economic Position and Prospects", June 28, 1978

Effective January 1, 1975 all sections of the BMA Law were put into effect. In August 1975 legal reserve requirements of 5 per cent for domestic and 1 per cent for foreign currency deposits in commercial banks were instituted. As of December 31, 1977, commercial bank deposits with the agency slightly exceeded these requirements. The BMA does not have authority to set mandatory interest rates for the commercial banks, but it has given advice as to limits on interest paid on deposits which apparently are being followed. ^{1/} In order to stabilize interest rates in Bahrain and also protect against exchange risk, the BMA has made swap arrangements with the banks under which BMA will buy foreign exchange spot and sell it forward against dinars. The forward selling price for the foreign exchange is fixed (as compared with the spot rate) by the usual interest arbitrage, i.e. the difference between interest rates abroad and those which BMA wants to prevail in Bahrain.

In March 1975 the BMA arranged for the issue of a 3-month obligation of Alba which was sold at auction thus taking a tentative step towards opening a capital market in Bahrain. In October 1977, the BMA also acted as an agent for the Government's issue of development bonds. It is apparent that these bonds have a ready market. They are to be sold through financial intermediaries in Bahrain. The commercial banks, particularly the National Bank of Bahrain, act as transfer agents for the shares of money enterprises. There are some 10 brokers who handle most of the trading in shares in an over-the-counter market. The Bahrain Investment Company is a mutual-fund type of enterprise. ^{2/}

^{1/} At present these rates are 6 per cent on deposits up to one month, 6 1/2 per cent for 3 months, 7 per cent for six months, 7 1/2 per cent for 12 months, and 8 per cent for 15 months or longer. The BMA has encouraged the banks to issue certificates of deposits, but so far this has not been done.

^{2/} It is an investment banking institution established in July 1977 with a paid-up capital of BD 2.5 million subscribed by leading Bahraini merchants and entrepreneurs, and the General Organization of Social Insurance. The company was granted an investment banking license by the BMA in October 1977. Its main objectives are to undertake private investment in Bahrain and abroad in the fields of corporate finance; equity participation; real estate; international finance; portfolio management; project evaluation; international trading; and development finance.

The currency Board collected and published quarterly statistics from the commercial banks in Bahrain, but had no powers over them. In the late 60s and early 70s the number of banks increased steadily, as the economy of Bahrain and the whole Gulf grew through the accumulation of oil revenues, but essentially the services provided by all banks remained simple and basic related to the trade and settlement needs of the community.

The intricacies of the Interbank and Eurocurrency markets, rollover loans and bond issues did not affect them.

Already in 1973 the Bahrain Government had sensed the need for more control over Banking, and a monetary Agency Law which contained extensive central banking powers was prepared and passed at the end of 1973. The choice of name may have reflected the example of Saudi Arabia, or if you look for as philosophical point, the Minister of Finance has final authority on certain matters, but in practice the Agency has wide discretionary powers in all necessary areas.

Although the Agency immediately took over the responsibilities of the Currency Board for the issue of bank notes, its remaining departments did not become effective until the beginning of 1975. From that time, the Agency became the Central Bank for the Commercial Banks in Bahrain who moved their clearing settlement accounts from the National Bank of Bahrain. Banknotes were from then on issued on a domestic currency basis, the principle of foreign exchange cover was preserved because balances on the Clearing Account could only be created against Foreign Exchange purchased by Agency from the banks themselves or from the Government. The Government continued to use the commercial banks for their domestic currency operations, but agreed to sell oil revenues in the future only to the Agency, who also became responsible for the management on a fiduciary basis of the foreign exchange reserves of the Ministry of Finance.

The decision in the first year was to limit the number of banks in the local market. Although three or four banks actually opened after 1974, no new licences were issued by the Agency until one given to the Al-Ahli Commercial Bank which is due to open in the near future.

As a result, banking in Bahrain survived relatively well the great boom years of '75 and '76 when Government spending, the money supply and bank lending each grew by 35% and 65% in the two years before falling back to more reasonable levels of 10-15%. The lack of a multitude of small banks removed some of the desperate competition for business that is so dangerous. Certainly, lending to the construction sector rose dramatically, and there are now some empty houses and offices, but by no means all are financed by bank lending. Also, the commercial banks in the Gulf are the only well developed channel for capital so that they must necessarily be more involved in real estate than in countries where other institutions are available. The cry used to be heard for a Real Estate Bank. Calling something a Real Estate Bank does not remove the risk from the business, indeed the concentration of credit in one sector adds to the danger. The need is for long term financing, and given the assurance of a continuing deposit base, commercial banks, throughout the world have learnt to play a part in construction lending.

British advisers to Bahrain Monetary Agency believe that, although the years 1975 and 1976 saw a considerable degree of inflation in Bahrain and the Gulf, this was a price that had to be paid for putting the new levels of oil revenues to work and the country has achieved a far higher level of development and infrastructure from which more orderly growth can now be sustained.

2. The Set-Up of Offshore Banking Units (OBUs)

However, there were a considerable number of banks in 1975 who were anxious to establish a branch in the Gulf, possibly in Bahrain. In addition, it was evident that the existing banking systems were not equipped to handle the investment and recycling of the rapidly growing surpluses of the major oil-exporting countries of the Gulf. Oil revenues not required for immediate conversion bypassed the local banking systems and were invested directly in the international money markets, that is to say in Europe or America. That is why, for much of 1974, the local banking statistics had shown little evidence of the growing wealth of the region.^{1/}

Bahrain came up with the idea, which was not, of course, totally unique, because a precedent had been established in Asia, in Singapore, of a regional market in offshore international funds. Banks would be invited to go to Bahrain and establish a fully staffed operating office, but it would not be allowed to undertake dealings in the local market in Bahrain except with the existing fully-licensed banks and with the government agencies. Its main thrust would be to provide international banking services within the Gulf, to bring a sector of what was available in London and New York, and to offer those same services in Bahrain within the working day and the time zone of the Gulf itself. This meant, of course, that the banks who came must be full branches of the world's leading financial institutions.

Numerous benefits for Bahrain were seen coming out of this. Although some bankers in Bahrain may find it hard to believe, there is a potential employment problem. There is a very large number of young Bahrainis in school and university who will enter the labour market in the next few years, and banking as an industry in Bahrain is, in fact, already one of the largest employers. On the other hand, Bahrain earns a considerable amount of foreign exchange from a service industry like offshore banking. The banks are, basically, not earning profits within Bahrain itself to cover their operating expenses; these expenses have to be covered by earnings from outside. Therefore, there is a foreign-exchange income flowing into the country which is already quite significant and can be seen to go on increasing. It was estimated that direct earnings in the region attained some £ 40 million in 1978.

^{1/} WORLD BANK: Report No. 2058-BH "Bahrain Current Economic Position and Prospects", June 12, 1978

Furthermore, the establishment of an active banking industry is believed to have a multiplier effect in a number of other industries such as, for example, the hotel industry. This particular ballroom is in frequent use by banks for their functions, and the number of visitors to Bahrain has increased substantially because of the attraction it offers in having a reasonably well developed financial industry. However, the hotel industry does not have a significant impact on local employment and industrial undertakings. But on the other hand, hotels could offer to the banks an attractive package, as for example freedom from taxation. This does not mean that they would never pay taxes, but it is a fact that there is no taxation in Bahrain, and the Government does not envisage to change this situation at present. No exchange controls; for offshore banking no reserve ratios. This was absolutely necessary, because international banking is now increasingly carried on only from those centres which adapt their regulations in an appropriate manner and do not, in fact, impose cash reserve requirements on international business. It should, however, be recognized, that the exemption of the OBU's from taxes, exchange controls and reserve ratios do not favour their integration in local economy and the stimulation of its development.

But this does not mean that they exercise no supervision. The regular reports from banks are designed to show the extent of their deposit and loan maturity structure, the exchange exposure in each currency, as well as the geographical distribution of risk and class of customer.

The island has a very good telecommunications system and excellent airline links, both within the region and with the rest of the world. ^{1/}

^{1/} The island has also a time zone placed neatly between Asia and Europe, and a working day starts a little earlier traditionally than in Europe, so that even in the summer months it has good three hours of trading before the European market begins, and in the winter months there is even greater advantage.

The OBUs are similar to international banks set up in such centers as Singapore and the Bahamas. They are subject to regulations by the EMA, but are not required to maintain primary reserves with the agency. They are required to submit balance sheet and income information to EMA. They are required to be full branches of the parent bank and have fully staffed offices, "brass plate" operations being ruled out. They may not be residents of Bahrain or offer banking services to residents except to the Government and its agencies, and to the fully licensed banks. By special permission they may, however, participate in financing domestic development projects that are considered of vital importance to the Bahraini economy. Over \$20 million have been so far invested by them, mostly for hotels.^{1/}As the enumeration in the previous paragraph indicates, fully licensed banks (FCBs) may apply for an OBU license, which costs BD 10,000 a year. The freedom from other taxes in Bahrain, her location close to the oil-rich Gulf countries and the fact that Bahrain-time is 3 hours ahead of European and 8 hours ahead of New York make the location desirable for handling foreign accounts. Perhaps most important is the political stability and economic freedom of the community. The OBUs perform a safe haven function for depositors, and they organize syndicate and other financing for projects even outside the Gulf. Aside from paying the annual fee and undertaking the investment required for an office, the contribution

^{1/} WORLD BANK: Report No. 2058-BH "Bahrain Current Economic Position and Prospects", June 28, 1973

of the OBUs to the Bahrain economy is the employment provided and the skills imparted to local staff.

A new wave of interest in the Bahrain offshore banking market has emerged in the past few weeks. A number of Arabian and European financial institutions have shown an interest in the terms of offshore and investment banking licences on the tax-free island.

The total assets of the two-year-old offshore market in Bahrain reached \$15.7 billion at the end of December last year, compared to the \$6.2 billion at the end of 1976, according to figures just released by the Bahrain Monetary Agency. A total of 33 offshore banking units were in full operation at the end of 1977, and a further seven have opened, or will shortly open, this year.

Regional activity now accounts for over half the market, with liabilities in Gulf currencies, particularly the Kuwait dinar and the Saudi riyal, reaching the equivalent of \$3.6 billion compared with \$1.2 billion at the end of 1976. Liabilities to Arab countries (in all currencies) reached \$3.2 billion (\$2.6 billion in 1976) and loans totalled \$7 billion (\$2.5 billion in 1976). However, in terms of currencies, the dollar comprises 72 per cent of all liabilities.

Outstanding foreign exchange contracts rose to \$2.3 billion (\$500 million in 1976), which, the BMA points out, reflects the increased use of Bahrain made by companies and banks having business in Arab currencies. Liabilities to European markets rose from \$2.3 billion to \$5 billion over the year, while assets in Europe rose from \$1.1 billion to \$3.9 billion.

Business with the Asian dollar market also showed a considerable increase, with assets in Hong Kong and Singapore reaching \$1.2 billion from \$300 million at the end of 1976.

The offshore banking units in Bahrain at present include branches of the major British and American clearing banks, as well as the big Euro-Arab consortium banks and leading European banking houses.

The investment banking licences, created last October, about a year after the announcement of the offshore licences, do demand that liquid assets equal 25 per cent of deposits received be maintained, and monthly figures must be submitted to the BMA.

As of December 1977 the OBUs had assets of over \$ 15.7 billion (Table 3 of Appendix), an increase of over 2 1/2 times during the year. It is important to note that 40 per cent of these assets were originated from and invested in Arab countries, thus contradicting the widely held belief that the OBUs are in Bahrain simply for recycling the oil money back to the United States and Western Europe. Moreover, the assets of the OBUs are about 8.75 times those of the FCB's. As of December 1977, 73 per cent of the assets and 75 per cent of the liabilities of the OBUs were interbank funds including transactions with other OBUs. However, the OBUs offer a facility for the international transfer of funds in the Gulf area. ^{1/} Less than 1 per cent of this concerned commercial banks in Bahrain. Those institutions that do both an OBU and an FCB business seem to be at an advantage in participating in Bahraini projects such as the LPG plant, which is attracting substantial interest from the foreign banks interviewed by the mission.

At the end of 1979 there were 51 Offshore Banking Units (OBUs) whose total deposits amounted to \$ 27.3 billion. 65 per cent of this amount was in US dollars, 27 per cent in different Gulf currencies, and 8 per cent in other currency units.

As to Arab deposits, they totalled \$ 16.1 billion at the end of 1979 compared to 11.7 billion at the end of 1978. ^{2/}

The Government has just enacted a ministerial regulation permitting non-banking institutions to establish themselves on an offshore basis and thus win exemption from the rule that at least a 51 majority of the equity be held by Bahrainis, that applies to companies operating in Bahrain. Its success will probably depend on whether commercial concerns which, on locating in Bahrain, find the lack of red tape there, which they encounter elsewhere, to be a sufficient incentive.

^{1/} As of December 1977, about 72 per cent of the assets and liabilities of the OBUs were in US dollars, and their lending terms corresponded closely to those of the Eurodollar market. Regional currencies constituted 23 per cent, and European currencies 5 per cent.

^{2/} Al-Iqtissadi Al-Kuwaiti periodical (The Kuwaiti Economist), No. 196, Kuwait, April 1980, p. 85, in Arabic.

Bahrain also offered the banks this opportunity, to establish themselves in a region where many of them had not previously had a branch office, but where their customers were increasingly active. The environment of Bahrain from a social and living point of view is also reasonably attractive.

So the objective in the first place was to create a money trading centre of international standing, where the banks themselves and other depositors in the region could carry out what one might call wholesale loan and deposit and foreign exchange business for which the facilities had previously not existed in the Gulf.

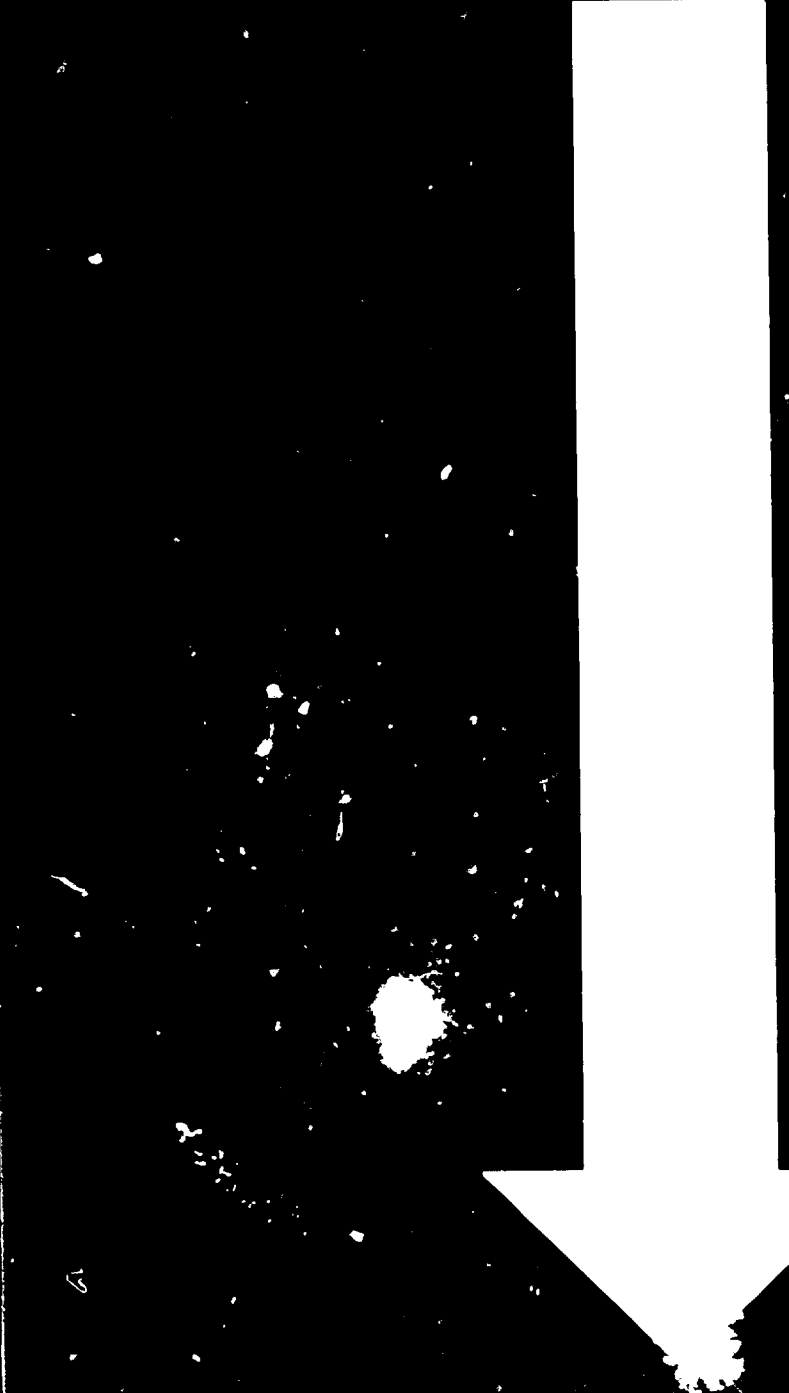
From that money market, progress towards a wider financial and capital market could evolve, but it would be a matter of growing naturally.

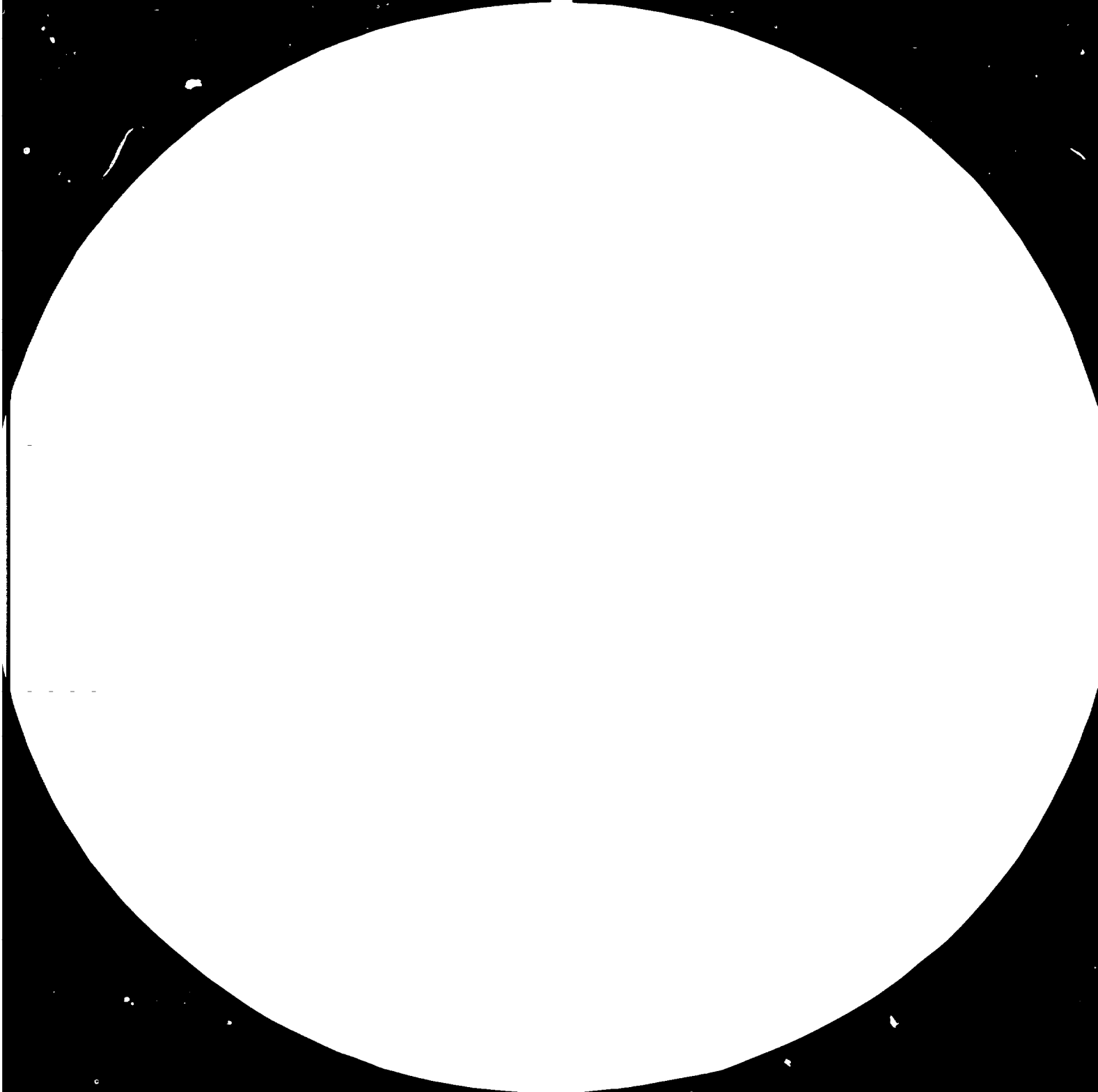
Bahrain does not have the long-term capital resources that those in Kuwait and Abu Dhabi enjoy, but on the other hand there was clearly a gap and what advantages Bahrain has seemed to point very much to the fact that Bahrain could fill it.

Thus the Bahrain Offshore Banking Unit was launched in October 1975. Up to 1978 the Banking Unit was busy in replying to licence-requests of about 50 major international banks who, at that moment and probably for a long time to come, were and will be the main recipients and handlers of international liquidity on a large scale.

But the banks, after having been licensed, were not in business. While it did not take them long to apply for a licence, they were wondering when they actually would be trading. One of the problems was that the Bahrain Offshore Banking Unit was operating in a period when there was a tremendous pressure on various facilities within Bahrain; houses and offices were scarce, and to some extent the banks had to stand in line in order to obtain these scarce facilities.

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Bahrain welcomed banks from countries such as Brazil, India, Korea and Malaysia. These were leading banks in their own countries, and Bahraini authorities welcomed them on that basis. The latter believed that these banks were to provide a new type of operation in Bahrain, insofar as they are responsible for capital raising for their home countries and now entering one of the important money-trading centres of the world.

Bahraini authorities stress the quality of names and welcome particularly Arab-based and Arab-connected institutions. In the Bahrain Offshore Banking Unit there are four of the major European-Arab joint ventures, i.e. the UBAF Group, the European-Arab Group, B.A.I.I. and FRAB Bank. All of them have chosen Bahrain as the Arab base for their operations which were originally established in Europe. Bahrain claims to welcome banks such as the National Bank of Abu Dhabi, United Bank of Kuwait, Arab Bank, Al Saudi Banque, Gulf Riyadh Bank, and the National Commercial Bank of Saudi Arabia as banks with a strong or complete Arab shareholding who are joining the market, as well as Gulf International Bank, which will be mentioned later.

At the beginning the idea of a regional money centre in the Gulf attracted some scepticism. Many people did not understand what the Bahraini authorities tried to do, and they found it difficult to understand how Bahrain, known to be rather poor, could possibly claim to be a major banking centre. This scepticism has now been overcome, and the role of Bahrain as a focus, a meeting centre and a market place, is being appreciated better. The main objective was to bring the facilities for international money trading right into the Gulf, so that it were no longer necessary to take recourse to Europe, America and other markets. Nevertheless, it is unavoidable that Eurobanking continues. Banks in almost all countries around Bahrain tend to have surplus foreign assets, and they make use of the Euromarket, which is a necessary repository for liquid funds and a service which is needed.

Money is not taken away from these countries when it is deposited in the Euromarket. Essential banking service is provided, particularly when the Offshore Banking Units (OBUs) take the deposits in local currency and free the local banks of exchange risks.

That is what the Bahrain offshore market is all about. Expressed in US-dollar, the volume of the assets of the banks grew from \$ 3.5 billion in June 1976 to \$ 6.2 billion at the end of 1976, \$ 15.7 billion at the end of 1977 and \$ 22.0 billion at the end of September 1978, just three years after Bahrain's original announcement. These figures are approximately equal to that recorded in Singapore.

Out of those funds, approximately 68 % were US-dollar deposits and loans in 1978. From a very early stage that percentage share has been in US-dollars, the currency still widely used by most banks to keep their international liquidity and for most of the international loans. This Bahrain-based market for regional currencies grew substantially, so that in 1978 they represented 28 % of the total, with Saudi riyals and Kuwaiti dinars the most important at around 18 and 5 per cent respectively.

Approximately 55 % of the business was within the Arab world, 25 % with Europe, and 10 % with Asia. Deposits and loans are well matched in each area, but with a marginal flow from the Gulf to Asia. This indicates the regional orientation, in priority, of Bahrain's OBUs and, complementary, that to Western Europe and Asia.

In 1978 Bahrain could claim a significant volume of non-bank business with both deposits and loans amounting to approximately £ 5 million each, which - with 25 % on the deposit side - was quite higher than London or Singapore. It would, however, be wrong to dismiss inter-bank business as quickly as some writers do. The local banking industry in most countries is a major channel through which funds are conducted before they enter the Euromarket, and dealings between the

International banks themselves are an essential way of spreading liquidity and risk in the market.

On the other hand, Bahrain - as all the other centres - relies essentially on short-term deposits of six months or less to support its assets, a certain proportion of which are lent out for longer terms. Intermediation between depositors who want liquidity and borrowers who need longer-term finance is one of the main functions of international banking. 95 % of deposits and 84 % of the assets mature within six months, so that the degree of mis-matching is well under control.

Spot exchange dealing is something for which statistics do not exist. The commercial demands of the area, mainly for non-dollar currencies purchased with dollars provided by the central banks are increasingly met by Bahrain, and trading with the Asian markets is observed, but while rates are so extremely volatile, it is not surprising that banks in Bahrain put limits to their positions.^{1/}

Another feature of the market has been the growth of medicine-term-loan syndicates handled in Bahrain. Special mention could be made at this point of Gulf International Bank which has its headquarters here and represents a joint investment by the Government of the seven Gulf States in international banking on a commercial basis. GIB has been particularly successful in raising funds for Arab borrowers, and the total volume of syndicated lending arranged in Bahrain is now becoming an appreciable part of the flow of capital within the Arab world. Bahrain itself benefited in 1978 with a \$ 60-million financing for its small associated gas-project, and the total value of loans reported must approach \$ 500 million.

1978 has also been a significant development in the fixed-rate-capital market in the Gulf. Interest rates on US-dollars, which had

^{1/} However, trading is now possible on Saturdays and Sundays which is another unique feature of the market.

for several years been lower than equivalent Gulf currency rates, rose steadily while Gulf rates fell. There would now be a clear advantage to first-class borrowers of about 2 ½ p.a., if they borrowed in Gulf currencies, in this context particularly the Kuwait dinar. Fears of arbitrary and large revaluations or non-availability of the currency do not stand up to rational analysis, particularly for borrowers who appear quite ready to accept German-mark or yen obligations. Bahraini monetary authorities believe that the OBUs would play a supporting role in the marketing of issues placed in Gulf currencies, and the more one sees the chaos in world currency markets the more sense it makes for both investors and borrowers to deal in currencies which are free from exchange restrictions but where the rate is firmly controlled by the authorities and not open to wild swings on every late rumour. They recognize, however, that internationalization of a currency brings problems in the form of increased dealings and possible inflows of capital, but Gulf monetary authorities are uniquely placed to identify and sterilize unwanted inflows, if they occurred.

1978 saw rather less activity than 1977 in Bahrain dinar bond issues, only one external issue and a further tranche of local development bonds. The authorities' intentions are based on interest from outside Bahrain in the currency as a unit of account, and they feel that the quality of the borrower is a vital ingredient in the development of this market.

Bahrain's own development bonds, however, represent an appropriate way to channel local institutional savings into the government's development programme.

Looking back over the four years 1974-78 and the three years since the OBU development started, much has been achieved, an opportunity was taken and, because it made good commercial sense, a concept succeeded. The financial systems of the Gulf have developed to serve the new type of economy that has come into existence in this region. What of the future?

Bahraini banking authorities believe that the OBUs will continue to increase their range of services, expanding their staff and scale of operations, although the dramatic increases in total assets and numbers of banks seen in the last years will inevitably slow down as the market approaches its natural limitations in terms of local business.

In conclusion one may say that in spite of several employment and financial advantages of the Offshore Banking activity, due to its legal and financial characteristics and in addition to its sensitivity to Euromarket fluctuations, it follows that it has a limited capacity to mobilize local labour and to induce further development of domestic industrial undertakings.

3. Need for Specialized Banking

There is a quasi-consensus among the business community and the Government agencies that Bahrain is not in need of specialized development banking institutions at the present time. There is no lack of funds for financing industrial and other ventures. Bahraini entrepreneurs, who are mostly traders, are financially affluent, and credit to private investment in all sectors is readily available from the commercial banks. Bahrain banks offer comprehensive financial services including medium-term credit up to ten years. During the boom years of 1973-77, Bahrain commercial banks' advances to the trade sector accounted for an annual average of only 36.4 per cent of their total advances, while the rest went to construction (27.8 per cent), manufacturing (14.3 per cent), transport (8.4 per cent) and others (13.1 per cent). Moreover, the small size of Bahrain and its narrow domestic market and limited industrial opportunities make it difficult to justify the establishment of a viable development bank.

It was mentioned before that the Government decided to establish a housing bank. This, however, is not a development bank in the strict sense. It will merely act as an agency for collecting the loans made by the Government for the construction of houses, and for increasing the share of the recipient in the cost of the house (i.e. reducing the Government's subsidies).

The BMA has announced plans to license more merchant banks. These would be expected to play a useful role in organizing new private ventures in commerce and industry.

Table 1

B.O. Exchange Rates

Monetary Agency Selling Rates

End of Period	1	2	3
1978	395.00	304.00	454.00
1978	395.00	304.00	454.00
1978	395.00	304.00	454.00
1978	395.00	304.00	454.00
1979	395.00	304.00	454.00
1978	383.00	289.00	424.00
1978	383.00	289.00	424.00
1978	383.00	289.00	424.00
1978	383.00	289.00	424.00
1979	383.00	289.00	424.00
1979	383.00	289.00	424.00
1979	383.00	289.00	424.00
1979	383.00	289.00	424.00
1978 Dec.	381.00	285.00	421.00
1979 Jan.	381.00	285.00	421.00
1979 Feb.	381.00	285.00	421.00
1979 March	381.00	285.00	421.00
1979 April	381.00	285.00	421.00
1979 May	381.00	285.00	421.00
1979 June	381.00	285.00	421.00
1979 July	380.00	284.00	420.00
1979 Aug.	380.00	284.00	420.00
1979 Sept.	380.00	284.00	420.00
1979 Oct.	380.00	284.00	420.00
1979 Nov.	380.00	284.00	420.00
1979 Dec.	380.00	284.00	420.00

State of Bahrain, Bahrain Monetary Agency, Quarterly Statistical Bulletin; Vol. 5, Number 1. Bahrain, December 1979, Bahrain Monetary Bulletin, Department of Economic Research and Statistics, Table No. 6.



1. GLOBAL ILLUSTRATIVE PROJECTIONS

1.1. PROJECTIONS OF TOTAL POPULATION

According to Government sources, Bahrain population added up to 308.900 inhabitants in April 1978 and was expected to double prior to January 1985. Thus by 1985 the number of population will exceed 616.000 inhabitants reflecting an average compound ^{1/} rate of growth of 7 per cent during the eight years of 1978-1985.

If the population is to pursue its increase at the same rate over the following period 1985-1990, its total number will increase again by 35 per cent and attain 831.600 inhabitants by the year 1990. A further projection of the same rate of population growth over the period 1990-2000 shows a 70 per cent increase, i.e. an increase of about 582.120 inhabitants. That will bring the total population of the country up to some 1,413.000 inhabitants before the end of this century. This means that the population will multiply by 2,295 between 1985 and the early 2000s, and by 4.59 between 1978 and the beginning of the 20th century.

^{1/} This is the rate of domestic growth and emigration combined. As to the average annual rate of 7 per cent growth, used here, it was calculated according to Bahraini official figures indicating that the country's total population will increase between 1978 and 1985. See Chapter 1, General Presentation and Population, page 3

1.2. THE PROSPECTS OF THE GROSS NATIONAL PRODUCT FOR 1980, 1990 AND 2000

Bahrain's Gross National Product (GNP) at current market prices was BD 133.0 million in 1973 and rose to 543.4 million in 1977. Taken at constant 1977 market prices, the Bahraini GNP was valued at BD 412.7 million in 1973 and BD 543.4 million in 1977. This is a total increase of BD 135.7 million over the period 1973-1977, an average growth of BD 33,925 million per year, or 3.22 per cent p.a.

If we pursue our assumption that Bahrain's GNP has continued to increase over the period 1977-1980 at its previous rate of growth during the years 1973-1977, i.e. at 3.22 per cent per year, some 32.58 per cent over these four years, then the GNP will increase by almost BD 130.14 million, thereby adding up to almost BD 728,714 million in 1980. Pursuing the same trend, the GNP will increase by about 32.2 per cent, some BD 599 million, over the 1980s, adding up ultimately to almost BD 1327,717 million in the year 1990.

As to the period 1990-2000, assuming the same 3.22 per cent rate of growth in the GNP p.a., a total of 32.2 per cent, the GNP will increase by BD 1091,383 million, adding up to more than BD 2419.1 million in the early 2000s.

1.3. PROJECTIONS OF PER CAPITA PRODUCT

According to Bahrain statistics^{1/} Bahrain had a total population of 308.900 inhabitants in 1977. At that time, according to World Bank estimations^{2/}, Bahrain's Gross National Product was BD 548.4 million, estimated at constant 1977 market prices. This means that the Emirate then had a per-capita product of about BD 1775.33, some \$ 2,965 for the year 1977^{1/}.

If we assume that the Emirate's GNP continued to increase at its previous rate of growth of 8.22 per cent per year (as in the previous period 1973-1977) during the period 1977-1985, an eight-years increase of about 65.76 per cent or nearly BD 360.63 million, then the GNP will add up to almost BD 909.03 million in 1985 and the per-capita income will rise consequently on the basis of a total population of 616.000 to nearly BD 1475.4, some \$ 5,477.0 per year, for the year 1985.

If the Bahraini economy will further grow at the same rate between 1990 and 2000 (8.22 per cent), and if the population will pursue its previous 7 per cent rate of growth during the years 1985-2000, if the GNP will be, as already calculated, almost BD 1,237.7 million, and the total number of the population will be 1,413.720,000 inhabitants, then the per-capita income will be almost BD 938.5 before the year 2000. This means that with the population growing quicker than the GNP during the period 1985-2000, the per-capita income will sensitively decline.

1.4. Three alternative scenarios

Several alternative scenarios are, however, envisageable, based on different hypotheses for the growth of population and GNP:

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- 1/ The exchange rate of the Bahraini dinar was fixed by the Monetary Agency at \$ 1 = 395.80 Bahraini fils (1 dinar = 1000 fils)
 - 2/ Using the official 1979 rate of exchange, 1 US dollar = 378 fils or BD 0.378.

1. The first scenario is based on a reverse trend with two hypotheses:
First, following or directly without a quasi-stagnation in the future growth of population between 1985-2000. This could result from a government decision to dramatically stop immigration or from a dramatic fall in the growth of the local population. From a realistic point of view, a reduction in the local rate of population growth may occur at the beginning of the mid-eighties and up to the end of the century, in relation to smaller families and bigger consumption.
Second, the GNP will pursue its growth at the same rate of 8.22 per cent per year during this period and will be the same as already assumed above.

2. The second scenario could be played by adopting the hypothesis that, parallel to continuity in population growth, an acceleration of growth of the GNP will take place, leading to a higher and more systematic upgrading of resources, a consolidation and further diversification of manufacturing added to increasing profitable services during the period 1985-2000. As a result, the GNP growth will sustain the population growth by preserving and probably boosting up the per-capita-income in the early 2000s. In order to be seriously considered, this second scenario requests a strong move by Bahrain to reinforce manufacturing and, relatedly, promote systematically schemes of sectoral planning and other forms of economic coordination in the scale of its Gulf subregion.

3. A third scenario, combining the hypotheses of the two previous scenarios, simultaneously implies an increasing moderation in the rate of growth of population with a sustaining increase; furthermore, a multiplication of the GNP during the period 1985-2000.

Population growth will likely tend to slow down and probably to stagnate later under the combined efforts of individualisation of social life, continuing organization, increasing consumption and the development of capital-intensive industries in the Emirate. On the other hand, the extension of first-processing industries and of oil-related infra-

structural maintenance activities, as well as financial offshore banking, may all permit a consolidation and even an acceleration of the rate of growth in the GNP during the years 1985-2000. As a result, per-capita income may achieve an optimal performance and stay even above its level projected for 1985.

This scenario would be an optimal one for Bahrain's economic development. Precisely, it calls for a global and systematic regionalization of Bahrain's industry and total economy. This will be the country's economic and political challenge in the next twenty years.

2. SECTORAL PROSPECTS OF THE FUTURE

2. 1. PROSPECTS FOR THE AGRICULTURE AND FISHING SECTOR FOR 1980 and 1990

Increased efforts are made to consolidate the agriculture and fishing sector through specific capital spending, tax policy training and other policy measures. However, in spite of these efforts, the sector's gross product declined from BD 10.2 million in 1973 to BD 9.4 million in 1977, some 19.61 per cent less, an annual average fall of 4.90 per cent, at constant 1977 market prices. ^{1/} This de-
volution is due to limited agricultural potentialities and steady population growth; therefore, it is not unrealistic to assume a con-
stancy of this trend and to project the value of the agriculture-and-
fishing gross product over the current period 1977-1980. If this is
the case, the sector's gross product will fall by -14.71 per cent
during the three-years period 1977-1980, decreasing to slightly more
than BD 8,017 million in 1980. Assuming that the sector will develop
by following the same trend over the present decade, its gross product
will fall by -4.9025 per cent per year or 49.025 per cent between 1980
and 1990. This will lead to slightly more than BD 3.93 million in 1990.

The conclusion which has to be drawn here is that unless Bahrain
succeeds in dramatically increasing its agricultural productivity and
output, it will face an even more grave agricultural and fishing deficit.
However, a slowdown of demographic growth may limit the dimension of the
agricultural problem which will confront the Emirate and, consequently,
constitute a first alternative to those prospects. Another, more positive,
alternative could well be a boosting of the gross fishing product, pro-
bably less problematic than that of agricultural activity.

^{1/} Using World Bank estimations.

2. 2. PROSPECTS FOR THE OIL-EXTRACTION-AND-MINING GROSS PRODUCT FOR 1980 AND 1990

During the 1970s Bahrain has faced the very serious problem of immediate and steady decline of production and depletion of available reserves. Since the Emirate has been a small producer from the very beginning, the important price increases which took place failed even to maintain the real value of the oil gross product. Thus the latter fell from BD 209.0 million in 1973 to BD 194.1 million in 1977, some BD 14.9 million ^{1/} or almost 7.13 per cent decline during this four-year period. This meant an average decrease of more than 1.78 per cent per year of the sector's gross product.

Assuming that the trend continues over the present period 1977-1980, the gross product of the oil and other mining sectors will decrease by nearly 5.35 per cent, from BD 194.1 million in 1977 to nearly BD 191.24 million in 1980. In fact, with the active current establishment of an associated-gas industry, it is expected that the gross product from the oil-and-mining sector is to increase through an extension of its base into an all-hydrocarbons-crude-oil-and-mining sector. But it is not yet possible to build plausible data on the new and growing product from associated gas. The accelerating alignment of the gas price to that of crude oil reinforces the potential for the new gas projects to sustain the sector's future production.

Looking at the ten years 1980-1990, two different hypotheses could be adopted with regard to this second primary sector for the assessment of its prospects for the 1980s.

A first hypothesis would imply the continuation of the trend observed in the period 1973-1977 and its extension over the most recent years 1977-1980 and over the next decade. If this is the case, the product from the oil-and-mining sector will fall again at the same annual rate of 1.78 per cent at an average from BD 194.1 million in 1977 and nearly BD 191.24 million in 1980 by more than BD 34.04 million over the next ten years, thereby attaining a new level of almost BD 157.20 million in 1990, some 17.8 per cent below the assumed 1980 level, 23.14 per cent

^{1/} The Oil and Mining sector had its gross product strongly boosted at current market prices, but had it decreased at constant 1977 market prices during the period 1973-1977. Inflation has been soaring all along the 1970s.

below that of 1977 and 30.26 per cent below the initial base year 1973. This would mean that unless some qualitative and positive changes will take place in this oil-and-mining sector, its gross product might likely fall by nearly a third of its value between 1973 and 1998.

But another and not less plausible hypothesis would imply a significant change in the sector's gross product, due to the newly established and quickly growing associated-gas industry. With the accelerating rise of gas and its price alignment to crude oil, it may be justified to project a stabilization in the short run for the early 1980s, then an increase of the gross gas product already before the mid-80s and, as a result, of the oil, gas and other-mining sectors.

2.2.1. THE PROSPECTS OF OIL AND GAS "REDEPLOYMENTS" FOR THE 1980s

In recent years the Emirate's domestic oil and mining sector is gradually achieving a redeployment within the hydrocarbons sector. While oil supplies are decreasing constantly, gas supplies are increasing within the oil and mining sector. This is a continuing move of important structural significance for the near and far future.

As gas production is quickly approaching that of crude oil, one may expect two successive phases of development within the oil and mining sector:

Phase 1: Domestic crude oil reserves and output will continue to decline, but further oil price increases will tend to compensate totally or to a large extent the negative effects of the decline in oil supplies. At the same time, natural gas supplies will increase also, compensating partly the decline in the oil income. This phase may last from 1983 to 1985.

Phase 2: Domestic crude oil output will further decline, but oil prices will not cope with the resulting fall in revenue. The gas prices, however, will entirely compensate losses in the crude oil branch and even permit total revenues from the sector which will exceed all previously attained levels. This may take place between the mid and the late 1980s. At that time, Bahrain's oil-and-mining sector will become largely a gas-and-mining sector.

It must be kept in mind that gas, like crude oil, is depletable. Furthermore, since it is and will be

systematically used in big quantities to satisfy the country's own industrial and current non-productive consumption, this raw material and energy substitute for oil will be consumed systematically and intensively, and it will not be available to an unlimited extent.

2. 3. PROSPECTS OF MANUFACTURING FOR 1980 AND 1990

Manufacturing is a sector which witnessed a sharp rise during the years 1973 to 1977. This came as a combined result of simultaneous increases in the gross product of oil refining, aluminium smelting and processing, flour milling and other manufacturing activities, respectively. Taken as a whole, manufacturing had its gross product risen from BD 48.6 million in 1973, at constant 1977 market prices, to BD 115.1 million in 1977 - an increase of BD 66.5 million or 136.33 per cent over the period considered. This reflects an average growth of nearly 34.21 per cent per year. A look into the different branches which compose the sector permits to notice that oil refining, aluminium and other, non-identified, manufacturing undertakings were the main contributors to the sharp rise in the sector's global gross product. While the increase achieved by oil refining is mainly attributed to the oil price and, consequently, to rises in value, the other increases, mainly of aluminium, reflected a combined effect of aluminium price improvements and a further upgrading of the aluminium products.

In any case, a simple projection of the manufacturing's global gross product leads to the assumption that the sector's main branches will achieve the same combined performance for 1977-1980 as that which had been achieved in 1973-1977. If this is the case, the gross product of this sector will rise by $34.21\% \times 3 = 72.63$ per cent, or nearly BD 33.60 million, from BD 115.1 million in 1977 to about BD 198.70 million in 1980. The manner in which the trends in prices of both the oil and aluminium products have developed during the last three years seems to justify to a large extent the hypothesis of continuity in performance by manufacturing in Bahrain.

Furthermore, looking ahead over the years 1980-1990, and applying the same trends in growth, we can foresee a total growth of 342.1 per cent over the decade 1980-1990. This will bring the manufacturing gross product from BD 198.70 million in 1980 to more than BD 679.74 million in 1990.

Assuming that the GNP, at constant 1977 market prices, will increase over the period 1980-1990 also at 8.22 per cent per year in average, its rate of growth during the first period 1973-1977 and over a second period 1977-1980 being continuous, then Bahrain will achieve a GNP whose value at constant 1977 market prices will be 82.2 per cent higher than its projected level of 1980, some 115.08 per cent more than in 1977. This will add up to nearly BD 728,714 million in 1980 and almost BD 1327,717 million in 1990, respectively. At that time, manufacturing's share will represent more than 51.19 per cent of the country's GNP. In qualitative terms, this will mean the transformation of the Bahrain economy by that time into a largely manufacturing economy.

3. NEW TRENDS AND PROSPECTS FOR INDUSTRIALIZATION

"My advice to the OPEC countries," said Mr. Youssef Al Shirawi, Minister of Development in Bahrain, a Gulf country soon to run out of crude, "is to invest in patents and research on alternative sources of energy. The quicker there is a breakthrough, the sooner the pressure to pump crude will be taken off. Instead of wasting crude to heat homes we could use it exclusively as a raw material for petro-chemicals and fertilizers, for which there are no substitutes." ^{1/}

No one is writing off the multinational oil companies. Their skills and worldwide networks will be in demand for the foreseeable future. But their future profits will depend in part on their ability to deal with Gulf producers not only as suppliers but as competitors.

^{1/} "Seven Sisters in Retreat as OPEC takes Control"
in: OPEC Bulletin, Vol. XI, No. 12/13, Vienna, March 24/31, 1980, p. 9

3.1. BAHRAIN'S APPREHENSION ON LOCAL INDUSTRIALIZATION

In spite of the abundant energy and feedstock made cheaply available for the hydrocarbon-based industries' sake, in spite also of the funds locally available or provided by the various Gulf governments, industrialization has not turned out to be a sufficiently convincing and encouraging experience. This is the real reason behind the relative or absolute turnaway from the income-diversification-and-renewal strategy which is based on industrialization, a phenomenon which has been observed during the last three or four years, not only in Bahrain but also in the rest of the Gulf states. Severe climate, unilateral resources, shortage and inadequacy of local labour, and the high labour costs explain generally this discouraging decline of the industrialization rhythms and role in preparing the post-oil era. Although Bahrain is more and better equipped with its own important labour force than the other Gulf states, the Emirate's oil sector yields no significant profits, while production and reserves continue to decline. Furthermore, Western interests are reluctant to bring significant financial funds and fail to ensure marketing. In May 1978, the Bahraini Minister of Development and Industry, Youssef Ahmad AL-SHIRAWI, said about two years ago at a London conference, that the Gulf governments' efforts to develop industry were "constructions of luck". The Bahraini Minister of Industry strongly criticized the role of Western partners for failing to bring funds or to ensure proper marketing.^{1/} In a published report he said: "It is no wonder that the industries along the Gulf have met and are meeting great difficulties. The only two advantages - cheap energy and the availability of financial funds - are eroded by the severe climate and the high cost of labour based on low productivity. Plans were initiated either by bankers with little idea of engineering, or by engineering firms with little idea of marketing."^{2/}

1/ "SHIRAWI Criticizes Gulf Industry Plans", in: Middle East Economic Digest (MEED), Vol. 22, No. 21, London, May 26, 1978.

2/ A report published by the Bahrain-based Gulf Weekly Mirror, cited in MEED, May 26, 1980.

3.2. PROSPECTS FOR INDUSTRIAL BRANCHES AND INDUSTRIAL EMPLOYEES SHARING

Three key variables will likely influence the development of the employees sharing among the different branches of the industry in Bahrain during the current decade; these variables are:

1. The expansion and growth of the industries of gathering and exporting associated gas.
While this variable will sustain the share of the primary hydrocarbons industries in the Gross National Product, its capital intensity will not allow a corresponding growth of their share in industrial employment.
2. The expansion and growth of the aluminium and petrochemicals downstream manufactures.
3. The multiplication and diversification of industrial undertakings, downstream to ship repairing.

Variables 2 and 3 will sustain a gradual and increasing move downstream of the industrial processing industries, thereby embracing new and more upgrading processing sequences and extending a little more the degree of integration of the whole industrial sector. This will inevitably increase the share of these industries in total industrial labour employed.

Due to the failure to get informations from ALUMINUM BAHRAIN about its expansion or new projects for the forthcoming years, and because of the difficulty to assess the different direct investments in ship repairing and their expected downstream and related effects, it seems to be difficult to perceive soundly the prospects of these industrial undertakings, in particular in the case of Bahrain, for the next years of the current decade.

Projection of the recent rate of global growth in industrial output, particularly in manufacturing, assumes a certain constancy and ignores differential and changing increases in the various branches. Such a method reveals to be inconsistent and misleading, though often used in similar country studies. Only detailed data on the new branch and project investments over the future periods as explicitly expressed by the sector's decision-makers may allow consistent and therefore relevant assessment of the prospects.

In a Ph. dissertation submitted by Mr. Jassem AL-MANA'I, La Sorbonne University on the industrial development in Bahrain ^{1/}, after a historical analysis of the industrial evolution in this country, the author attempts an analysis of the industrialization and the economic development which took place in Bahrain by using an input-output method ^{2/}: Thus, AL-MANA'I highlights a parallel between growth in the industry and that of import trade of Bahrain, and spells out the industry's extraversion both from the two angles of input importation and output exportation. The main conclusion he draws is that the industrial sector, composed mainly of big units of production, has extremely limited forward and backward linkages with the other sectors of Bahrain's economy. Therefore, he suggests that the country gives strategic priority to the establishment and the development of new backward and forward-linking industries. Furthermore and unseparatedly, he recognizes, as other components of a strategy for industrialization, the following:

1. To set up a specialized industrial body.
2. To elaborate, implement and follow up through and by that body an integrated industrial programme aimed to provide the industrial sector with the basic, presently lacking, elements required for the realization of such forward and backward projects.
3. To provide, through the State, promotional and protective facilities to sustain the private industry.
4. To adopt a Gulf-wide scheme of coordination as a determining framework and a dynamic entry to industrialization.
5. To adopt a sub-regional scheme of sectoral planning for industries like the aluminium and steel industries. Such a scheme needs to combine the entering of the Gulf States in joint ventures and their sharing of the different and integrated sequences of these industries.

^{1/} AL-MANA'I, Jassem: "Industrial Development in Bahrain", a doctorate dissertation, Paris, 1979, La Sorbonne University.

^{2/} DEBBAS, G.: "Input-Output Table: Industrial Planning", Bahrain, March 1973, Ministry of Finance and National Economy (report prepared and submitted in 1971 to Bahraini authorities). (mentioned by Jassem AL-MANA'I)

3.3. INDUSTRIAL GULF-BASED JOINT VENTURES RELAY LOCAL INDUSTRIALIZATION IN BAHRAIN

Contrary to its oil-rich neighbours in the Gulf, Bahrain does not allow for "surplus" revenues, and this could be looked at as a constraint to industrialization, i.e. to industries of foreign or local origin. In fact, this constraint has increasingly turned out to become a stimulus and an argument for entering into bilateral joint ventures or for promoting regional multilateral industrial projects. Simultaneously, the other Gulf states are attracted by the financial exemptions and other advantages granted for investments according to Bahraini local regulations and rules; those states also appreciate the high level of the Bahraini labour force, but above all Bahrain's developed and satisfactory infrastructure. Single industrialization is handicapped by the Emirate's structural constraints (limited skilled and unskilled labour, problems with immigrant labour, difficult accumulation of oil and gas, narrow market). Meanwhile, regionwide industrialization to be located in Bahrain is increasing, and the Emirate's neighbours, who are richer in oil and gas and therefore create capital surpluses, are indeed over-extracting. To benefit from Bahrain's privileging financial regulations and from its underpriced gas, the other Gulf Emirates and the Kingdom seek joint ventures with Bahrain, to bring capital and to co-finance different projects; For example Kuwait, which had provided Bahrain's aluminium project with the necessary funds for the construction of its factories and facilities. At present, Kuwait is establishing a petrochemical venture jointly with Bahrain, and has recently offered a credit of 6.2 million through its Kuwait Fund for Arab Economic Development (KFAED) to found a new industrial zone in Bahrain. This Kuwaiti credit covers 49 per cent of the project's total cost, and it is granted for a period of 17 years. The interest rate is only 3.5 per cent. ^{1/}

1/ AL-IQTISSAI Al-Kuwaiti (Kuwaiti Economist), No. 196, Al-Iqtissai Al-Kuwaiti (Kuwaiti monthly), Damascus, April 1980, Kuwait Chamber of Commerce and Industry.

3.4. PROSPECTS OF THE ALUMINIUM INDUSTRY FOR THE PRESENT DECADE

By starting the first aluminium smelting and manufacturing in the Gulf area, Bahrain definitely seized a time advantage, of which it is already and increasingly benefiting. At the same time, the Bahrain aluminium industry which was launched as a foreign-dominated multinational venture has turned into a locally-dominated regional industry. Rather than setting its own aluminium smelter and competing with the young but already operating Bahraini industry, Saudi Arabia preferred to substitute the foreign interests which withdrew from the ALBA joint venture, thereby changing it into a mainly bilateral company with regional features and prospects. This, as much as it could be explained by the very recent decision made to increase the present production capacity of the ALBA smelter of 125,000 tons per year by 45,000 tons per year, was immediately followed by the decision of Saudi Arabia (an equity holder in ALBA capital) to suspend its initial project of establishing an aluminium plant in Saudi Arabia. ^{1/}

Behind the U.S. producers' foreign expansion plans there is their concern about rapidly rising energy costs and the future availability of electric power in the United States. Smelting of aluminium requires more electricity than any other industrial process. Producers must control these costs to remain competitive with steel, plastics and other possible aluminium substitutes.

The average cost of energy required to make a pound of aluminium has jumped by 56 per cent since 1978, to 13.4 cents, one senior metals analyst said. ^{2/}

^{1/} "Aluminium: Bahrein augmentera sa capacité de production",
in: Journal Les Echos, Paris, 4 juin 1980.

^{2/} "In Planning for a Decade of Expansion, U.S. Aluminium Producers Turn Abroad",
in: The International Herald Tribune, June 11, 1980

This is compared with 4 cents to 7 cents per pound in Brazil and Australia. The analyst said that costs in the United States could reach 20 cents per pound by 1983.

This illustrates the economic advantage which has been confirmed and is expected to increase in the case of Aluminium Bahrain.

Taking into account the export-orientation of the Bahrain aluminium industry, the prospects for the latter will be largely determined by the world aluminium producers' emerging strategy of preparing to spend billions of dollars to meet expectations of uninterrupted growth in demand throughout this decade.

In the 1970s the international aluminium industry stopped to increase production capacity on account of the depressed price of the metal. In the case of Bahrain, the U.S. and other multinational corporations which entered ALBA's joint venture reacted to the price depression by withdrawing from their Bahraini venture. However, in the past year or so, however, aluminium prices have risen sharply, as we have already indicated, particularly in Europe and the Far East. As a result, ALBA's position has sensitively improved to the advantage of Bahrain and its new and substitute partner, Saudi Arabia.

Rather than being a tactical measure, this withdrawal of the multinationals from Bahrain should or could be inserted in their new strategy to spread their manufacture in other, better selected and more profitable countries of continental scale and with abundant bauxite and coal reserves, like Australia, and others with abundant and cheap local energy and an immense domestic market, like Brazil.

Robert Marcus, executive vice-president of the U.S. ALUMAX, is considering a joint venture for a \$-600-million facility in Australia. Because of that country's abundant supplies of inexpensive coal,

natural gas and aluminium ore, and because of political stability there.

U.S. aluminium corporations also are searching for sites in developing countries. ALCOA recently announced plans for a large smelter in the Amazon river valley in northern Brazil. Reynolds Metals Co., the second-largest aluminium maker, is planning a joint-venture with the Philippine government to build a 154,000 ton-a-year smelter there.

A substantial share of the new aluminium-making capacity planned by U.S. aluminium producers will be built outside the United States. Deviating from earlier domestic expansion plans, the U.S. multinational aluminium corporation ALCOA is building aluminium smelters in Australia and Brazil.

It is obvious that a spread of smelters in Australia could cause serious concern for the Aluminium Bahrain (ALBA) associates. A further marketing research is needed in order to test the validity and extent of such fears.

The international aluminium industry sees bright prospects for its products. U.S. aluminium demand is expected to rise 4 per cent to 6 per cent annually through most of this decade, which is mainly due to increased use of lighter cars and in packaging and construction. This applies to the aluminium end-users in the 1980s in the U.S.A. as much as in Western Europe and Japan. This strong, already observed and growing trend opens good business horizons for the aluminium industry in Bahrain and justifies the latter's very recent decision to increase its plant production capacity by 45,000 tons a year.

The U.S. and the other aluminium producers have announced slight expansions at their domestic facilities and may even close some plants. The slow pace of domestic expansion means that U.S., West-European and Japanese producers will have to import metal from their foreign smelters. By 1990 about one fourth of U.S. consumption may have to be met by imports. ^{1/}

^{1/} According to Robin ADAMS, a metals and minerals economist at Chase Econometrics, in: The International Herald Tribune, June 11, 1980

To the extent that Bahrain has no aluminium ore but is relatively rich in gas, the Bahraini industry appears to be less advantageous than Australia, a country with abundant supplies of inexpensive coal, iron ore and natural gas. It follows that the low pricing of domestic gas is the very condition for Aluminium Bahrain to make profits. This goes against an economic upgrading and use of local supplies of gas which, in the final analysis, are only limited and depletable. However, the accelerating rectification of the gas price and its alignment to that of crude oil will increasingly re-establish the economic justification and commercial profitability of the aluminium industry in Bahrain over the following years of this decade.

3.4.1. Pros and Cons of Bahrain's Aluminium Industry

To weigh the advantages and weaknesses or limitations of the aluminium industry already set up in Bahrain, and in order to appraise its relationships both to the Emirate's oil-substituting long-term strategy and to the Arab Gulf and the Arab world's regional prospects for industrial complementarity and economic integration, we shall refer to the following criteria:

1. The degree of vertical, i.e. self-integration;
2. The pattern of geographical-economic insertion and integration.

1. By vertical or self-integration we mean the co-existence of all the subsequent and technologically interrelated stages of the aluminium-axed manufacture, production, circulation, consumption and reproduction.

Looking at Bahrain's aluminium industry, we can see that it presents a fragmentary pattern of manufacturing, since it is limited to the second-stage processing (refining of imported aluminium) and to extrusion, powder and cable manufactures.

The first two upstream sequences of the bauxite extracting and its first transformation (into alumina) are absent, since located in Australia. As to the two last downstream sequences, i.e. the distribution and marketing, they are also absent and located in Japan and Western Europe, respectively. Furthermore, the marketing strategy is defined and its control exercised by the foreign partners. This fragmentary production pattern implies that the pricing system of the bauxite ore, the alumina, added to the end-markets state and products pricing, are not controllable by Bahrain. Consequently, this uncertainty in the feedstock supplies and their prices as well as in the products' sale and pricing does not insure Bahrain's legitimate expectation to upgrade its gas resources and generate new income sources

by setting up its aluminium industry. An adequate solution to this combined problem of maximizing and obtaining profits from manufacturing undertakings must therefore be found. But due to the structural constraints of the Bahraini economy such a solution should rather be searched in - as we shall later see - an alternative combination of a revised and completed vertical integration and a revised pattern of regional insertion and integration.

A further and apparently sound opportunity to reinforce the domestic aluminium industries in the Gulf states is likely to be materialized in the near future. The Gulf Organization for Industrial Consulting (GOIC), a Gulf-wide organization to promote industrial cooperation and integration among the states of the area, is lobbying for a Gulf joint-venture for the transformation of aluminium. Its capital is evaluated at ED 34 million, and its capacity at roughly 40,000 tons of aluminium products. ^{1/}

2. By the pattern of geographical-economic insertion and integration we mean the way and geographical-economic manufacture distribution and spread of the different subsequent components of the whole aluminium-axed manufacture, production, circulation, consumption and reproduction.

From this angle, the aluminium industry in Bahrain is stretched upstream to its supply source in Australia, and integrated downstream in its markets both in Japan and in Western Europe. This is a far distance. It is a classical case of North-South vertical relationship which excludes intra-regional or inter-regional ties within an alternative frame of South to South complementarity and integration. Concretely, the aluminium industry of Bahrain could gain in seeking simultaneously an alternative and bigger vertical integration and an alternative supply in marketing and economic integration within the frame of the Arab region and by extension of that of the Arab, African and Asian regions.

Provided that an adequate strategy to achieve these goals is set with subsequent financial, investing and marketing policies, actions and measures, the two objectives of a higher integrated vertical integration and more closely regional and/or inter-regional integration are indeed reconciliable, if not necessarily inter-related and inter-actioned. Such a new perspective could benefit as much to the Bahraini economic future as to the further promotion of manufacturing sectoral planning and large-scale consumption in the Arab world and Arab-African and Arab-Asian financial, industrial and commercial cooperation and complementarity.

^{1/} Al-Iqtissadi Al-Kuwaiti, vol. 1980, No. 198, Kuwait, June 1980, Kuwait Chamber for Trade and Industry, p. 72, in Arabic

3.5. PROSPECTS FOR THE PETROCHEMICALS INDUSTRY

Due to the limitations in energy resources and to large energy consuming plants being constructed elsewhere in the region, the Government does not intend to establish very large petrochemical or energy-based industries on the island. However, there is considerable potential for expansion of medium- and small-scale manufacturing. The output of the extrusion plant, for example, could be used for high quality production of doors, windows and the like, and for buildings throughout the Gulf. Truck bodies are another important use for aluminium. The causeway to Saudi Arabia will link Bahrain with all the Gulf countries as well as Europe. Truck chassis could be imported and equipped with Bahrain-built bodies. The U.A.E. now has this work done in Lebanon. Electrical fittings are another category that should be investigated. ^{1/}

^{1/} *ibid.*, p. 16
(World Bank Report)

3.5.1. JOINT PETROCHEMICALS VENTURE WITH KUWAIT

A joint Kuwaiti-Bahraini petrochemicals company was established in Bahrain in 1979. The amount of its capital is BD 140 million, or some \$ 372 million.

Saudi Arabia, Bahrain and Kuwait have agreed to establish a company for the production of methanol and ammonia with a capital of BD 60 million (SR 630 million).

The petrochemicals complex to be set up under the agreement is expected to require an investment of \$400 million and will have a capacity of 1,000 ton each of ammonia and methanol per day when it goes on stream by the end of 1983. The agreement for the venture was signed in Manama, Bahrain, early in June 1980 by the Minister of Industry and Electricity Dr. Ghazi Al-Gusaibi, the Bahrain Minister of Development and Industry Yousef Al-Shirawi and the Kuwaiti Oil Minister Ali Khalifa Al-Sabah. The three countries will own the venture equally. 1/

1/ Saudi Economic Survey, Jeddah, 4 June 1980, Vol. XIV, No. 668, p. 6

3.5.2. Subregional Multilateral Co-Operation opens Prospects of Petrochemicals Promotion in Bahrain, and Petrochemicals Sectoral Planning in the Gulf

Due to its limited and declining supplies of crude oil and associated gas, as well as of oil revenues, because of social, political and labour problems, and in view of the limited domestic market, Bahrain has been reluctant to develop its own petrochemical industry.

Saudi Arabia and Kuwait, two neighbouring countries with "oil surpluses" and established and new petrochemicals projects, have chosen Bahrain to enter a trilateral joint venture to manufacture ammonia and methanol, two basic petrochemicals. Thus, at the end of May 1980, Saudi Arabia, Kuwait and Bahrain signed an accord by which they created the Gulf Petrochemical Industries, a joint company with the task of realising an ammonia and methanol complex in Bahrain. The capital of the company, fixed at BD 60 million, some \$ 160 million, will be equally shared by the Bahrain National Oil Company BANOCO, the Kuwaiti Petrochemicals Industries Company (PIC), and the Saudi Basic Industries Corporations (SABIC).

The future complex will have a capacity of 1,000 t/d of ammonia and 1,000 t/d of methanol. The global cost of the project is estimated at \$ 400 million, and the putting on stream of the project is scheduled for 1983. ^{2/}

From the point of view of the international division of labour and industrial specialization, Bahrain will thus extend its first-processing hydrocarbon industries; this will mean a consolidation of the growth in manufacturing, and the consequent reduction in the relative weight of the oil-and-mining sector in the national economy. However, ammonia and methanol are only basic petrochemicals, and their future manufacture in Bahrain will not imply a development in depth of the manufacturing sector nor an optimal upgrading of the hydrocarbon raw material.

^{2/} "L'Arabie Séoudite, le Koweït et Bahrein créent une société commune pour la construction d'un complexe pétrochimique à Bahrein", Vol. XII, No. 270, in: Le Pétrole et le Gaz Arabes, Paris, 16 juin 1980, p. 14

On the other hand, this new multilateral petrochemical venture illustrates the reinforcing trend to industrial coordination and, to some extent, of Gulf-scale sectoral planning in a rather pragmatic gradual way. However, such a development can only become possible if multilateral projects within the Gulf area are competitive in their production capacities and range of products, exceeding those of similar projects in the individual countries.

Around the mid-1980s, several petrochemicals projects which are almost simultaneously being developed will be accomplished and put on stream in the different Arab Gulf states. These projects will produce mainly ethylene and ethylene derivatives, as well as methanol.

Almost all those different projects are country projects, aimed to manufacture similar and therefore potentially competitive products, and all will be export-oriented, except in the case of Iraq, with their products destined to the same export-markets of Asia, Europe and, to a lesser extent, the USA.

Unless the Arab Gulf states involved in this new petrochemical construction and export scheme adopt a common strategy to coordinate their marketing plans and programmes, their respective national projects may face failure at their very beginnings. This applies also to a new trilateral joint ammonia and methanol venture planned by Saudi Arabia, Kuwait and Bahrain.

We therefore recommend that Bahrain endeavours to bring forward, jointly with its sister Gulf states, a scheme of sectoral planning to coordinate both production and marketing of the Gulf petrochemicals in the future.

3.6. GULF-BASED JOINT STEEL VENTURE IN BAHRAIN

The Arab Ship Repairing Yard ASRY turns out to become an antecedent and a stimulus for increasing Gulf-based joint projects. Thus Saudi Arabia entered into the Aluminium Bahrain joint venture company following withdrawal of some multinational interests from the Bahrain-based aluminium complex. More recently, a number of public authorities and private enterprises involved in iron and steel making and industrial investment in general examined at a meeting in Al-Manama, Bahrain's capital, a pre-feasibility study for a giant steel project for iron-ore refining and steel making in Bahrain. The project is supported by the Bahrain Government, which selected a special site for the project and agreed to support it with a promoting, i.e. low gas price. According to the study, the project will have a 4-million-tons-per-year capacity. ^{1/} In view of the already established aluminium refining and the higher feasibility and profitability of gas-based steel making there are good reasons to predict a materialization of this steel project in Bahrain.

Low pricing of gas is a sufficient stimulus for the establishment of a steel plant. Another quite important factor which favours this project is that Long Distance Crude Carriers (LDCCs) arrive empty in Bahrain (and, more generally, in the Gulf area), go then to ASRY for servicing (repair and maintenance), and are afterwards loaded with crude oil. These LDCCs would gain by bringing iron scrap and ore into Bahrain, and this could provide for the establishment of a steel plant in Bahrain.

The Bahraini Government already approved of a private steel factory in the early autumn of 1978. The BD-1.5-to-2.0-million (\$3.3-to-5.2-million) plant was to produce 25,000 tons per year, using scrap.

^{1/} Al-Iqtissadi Al-Kuwaiti (The Kuwaiti Economist), No. 196, Kuwait, April 1980, Kuwait Chamber of Commerce and Industry, in Arabic.

Bahrain imports some 35,000 tons of steel per year (1978 estimations).

The local steel is expected to undercut the price of imported steel by 20 per cent. ^{1/}

^{1/} Middle East Economic Digest (MEED), Vol. 22, No. 40, London, 6 October 1978.

1. IMMEDIATE CHALLENGES AND PROSPECTS FOR THE REPAIRING SHIPYARD

Decision makers in the various Arab-Gulf States do not always display a policy of coordination and integration as a means to counter the risk of competition inherent in their countries' similar natural resources and economic structures.

In the case of ship repairing, the Organization of Arab Petroleum Exporting Countries (OAPEC) entered - together with Bahrain - a multi-lateral venture for tanker maintenance and ship repairing, namely the Arab Ship Repairing Yard (ASRY). However, the neighbouring Emirate of Dubai and member of the Federation of United Arab Emirates decided to enter its own ship repairing venture alone (jointly with foreign partners), and is presently establishing a three-dock installation at Port Rashid, Dubai. This shipyard, which is almost completed already, has space for a one-million-ton VLCC and two 500,000-ton VLCCs in its three docks.

Since there may not be enough linkage for both the Bahrain-ASRY and the Dubai shipyards, a disastrous competition may arise between them, thereby adversely affecting the short-term profitability of the Bahrain shipyard.

Bahrain did not succeed in delivering a coordinated plan for a joint-venture shipyard to include also Dubai, its immediate neighbour and competitor. However, some coordination and joint scheduling of the two shipyards will clearly be necessary from now on. This may serve as an example, that - even when it is difficult to start a regional joint enterprise from the very beginning - the very emergence of competitive country-scale enterprises and their successful exploitation could and should become a stimulus for their joint management and dynamic integration.

5. PROPOSALS FOR A TRADE STRATEGY FOR THE YEAR 1990

Governments of the Arab-Gulf States have displayed an increasing and extending interest in setting up Gulf-wide schemes for commercial, agricultural, industrial and banking cooperation and coordination.

Both Iraq and Saudi Arabia have much bigger and diversified economies than Bahrain and the other Gulf States have. The two above-mentioned countries represent and can extend notably the local marketing potentialities for the newly implemented industries of Bahrain and the other small Gulf Emirates.

Since Saudi Arabia is already an associate of Bahrain in The Aluminium Bahrain Company (ALBA), the Emirate will, expectedly, encounter no difficulty in selling increasing amounts of its products on the particularly well-absorbing Saudi Arabian markets.

On the other hand, at the beginning of June 1980, the Joint Iraqi-Bahraini Committee adopted recommendations for a total exemption from customs duties for the two countries' products and for the utilisation by Iraq of part of the deloading and storing overcapacity of Mina Salman Port and the Storage Zone in Setra Island in Bahrain. ^{1/}

Furthermore, Iraq expressed its will to boost its imports of Bahraini aluminium. Due to the boom in construction and industry taking place in Iraq, and provided that this country pursues its present Gulf-oriented strategy, Bahraini aluminium products will likely find a new and expanding outlet in that neighbouring country.

^{1/} "Conclusion of the Joint Committee for Economic Cooperation with Bahrain", in: Al-Thawrah Daily, Baghdad, June 4, 1980, in Arabic.

We recommend that Bahrain adopt and carries out over the next ten years , 1980 - 1990, a trade strategy to be indispensibly sustained by and related to industrialization and further downstream involvement in the industrial field. The aims of such a strategy include:

5.1. Achievement of a significant qualitative shift in the commodity structure both of exports and imports.

This shift should be achieved by the year 1990 and pursued until 2000, comprising equipment and food imports, hydrocarbons, aluminium and petrochemicals exports, as well as services.

5.2. Reduction of the total net deficit in Bahrain's general trade.

The Emirate's trade deficit with its main partners, namely the United Kingdom, the other EEC countries and Japan is to be reduced simultaneously by 10 per cent.

5.3. Realization of a net increase in Bahrain's export trade.

The added value of Bahraini exports of oil and other commodities should be increased by 15 to 25 per cent. This would mean a major increase in the Emirate's exports to its first partner, the United Kingdom, and to its other main suppliers as well.

5.4. Increase in the future share of Arab countries in both Bahrain's exports and imports.

A 25-per-cent increase should be achieved by the year 1990 in order to integrate Bahrain's industry and economy further in the Arab hinterland and pursued until the year 2000.

6. PUBLIC FINANCE AND ECONOMIC PROSPECTS

Oil revenue is the main source of governmental income in Bahrain. In 1977/78 revenue from oil represents about 70 per cent of the public receipts. In comparison, non-oil revenues, which include customs duties, port taxes, public and other taxes, are but limited.

Decline in oil output leads to an evident decline in the rate of growth of oil income. This retards the rate of growth of the state receipts. In 1978 the clear decline in the rate of growth of the oil income led to only five per cent increase in government receipts against an average of 30 per cent of the annual rate of increase during the years 1974-1977.

Increase in customs duties received, which is the most important item in the income of non-oil services, was only around five per cent in 1978. In comparison, government expenditures grew between 1974 and 1976 at an annual rate of more than 70 per cent. However, the rate was brought down to 27 per cent in 1977 in conformity with the government's desire to put some constraint on the increasing demand within the frame of its financial policy. There was another and most significant reduction, to nine per cent, in the growth of government expenditures in 1978. As a result, the total budget deficit was lower in 1978 than what it had been in 1977.

6.1. PROSPECTS FOR RECEIPTS

As regards public receipts, those from oil have multiplied by two between 1975 and 1978, and declined in 1979 (as is shown in the following Table). To the extent to which the oil output continues to decline, the oil price increases may totally or partly compensate the fall in oil production. However, inflation and devaluation of the dollar will most likely prevent price increases from sustaining the oil income in real value.

Non-oil receipts have, at the same time, constantly increased, multiplying by more than two between 1975 and 1977, and almost by three between 1975 and 1979. In spite, however, of the new trend of gradually

declining income from oil and of the expected continuity in the trend of constant increase in non-oil receipts, this last category of receipts represented only a little more than one fourth of receipts originating from oil. In other words, Bahrain is facing the task of finding new and more substantial receipts from the non-oil sector and of succeeding in the "depetrolization" of its budget and global income. It is expected that Bahrain will pursue its efforts to use revenues from finance, mainly offshore-banking, and from industry, in particular gas-based, as substitutes. It is difficult to say which of those alternative sectors will predominate. On the one side, further industrial development tends to slow down because of the labour problem, although Bahrain has a relatively qualified and available local labour force; on the other hand, the experience of offshore banking units is too recent to allow a sound projection of its future advantages, and the development of banking and finance in Saudi Arabia, Kuwait and the United Arab Emirates must be borne in mind.

Taking into consideration what has been just said on the prospects for industry and finance, Bahrain's financial and economic prospects will strongly depend on further increases in the crude and gas price, although the country is no longer an important oil producer. The same applies to the recent and forthcoming increases in gas prices, which can sustain the Bahraini budget and its economy at least in the course of this decade.

The way Bahrain will manage to achieve this transition could be of great interest to all its neighbouring oil emirates, which sooner or later will face the same task of finding sources of income alternative to oil.

6.2. THE EXPENDITURES PROSPECTS

As to expenditures, they have more than doubled between 1975 and 1978. While the Bahraini budget was slightly positive in 1975, it experienced a slight deficit in 1978 (as is shown in the following Table). Globally, Bahrain moved from a budget with a slight surplus in 1975 to one with a slight deficit in 1979. However, it is important to look into the two categories of current and capital expenditures. From the following Table

it appears that the two categories have developed maintaining the same ratio between 1975 and 1979. Current expenditures were more important than capital expenditures in the beginning of the period considered. At its end, in 1979, current expenditures had multiplied by almost 2.5, but since capital expenditures have witnessed a similar multiplication, their ratio was almost the same as in 1975. From this point of view, the Bahrain government has managed to maintain a structural stability of its budget during this period.

Table 1

PUBLIC RECEIPTS AND EXPENDITURES (in B.D. Million) ^{1/}

	1975	1976	1977	1978	1979
TOTAL RECEIPTS	135.0	191.6	260.7	273.9	255.0
Oil Income	110.9	156.4	180.7	191.3	160.2
Non-Oil Income	24.1	34.7	50.1	55.7	63.7
Grants	-	0.5	29.9	26.4	26.1
TOTAL EXPENDITURES	121.3	203.2	258.3	282.3	280.0
Current Exp.	67.6	88.3	116.2	134.5	150.0
Capital Exp.	54.2	114.9	142.6	148.3	130.0
SURPLUS OR DEFICIT	+ 13.2	- 11.6	+ 1.9	- 8.9	- 25.0
EXTRABUDGETARY NET OPERATIONS ^{2/}	+ 23.4	+ 7.0	- 36.3	- 17.3	-
FINANCING	- 36.6	+ 4.6	+ 34.9	+ 26.2	+ 25.0

1/ "Bahrain ... Reducing Dependence on Oil and Paying Attention to Infrastructural Projects", Table No. 1, Public Receipts and Expenditures, p. 58

2/ Operations made through the Government Reserve Fund

7. ADOPTION OF A STRATEGY FOR THE YEAR 2000 TO ADAPT CONSUMPTION TO PRODUCTION

Private and public consumption is excessively high in Bahrain. The Emirate is a rather highly urbanized and densely populated country; its present density of population is about 548.37 persons per square kilometer ^{1/}. Its oil resources, already modest, are constantly decreasing, but Bahrain has aligned its pattern of consumption and expenditures to those of its neighbours incomparably richer in oil resources, especially during the last decade. Thus, import prices have been subsidized, even though the exchange rate is favourable to imports and unfavourable to exports.

Vehicle registrations in Bahrain rose from 32,907 in 1975 to 50,328 in 1977, a 65 per cent increase providing for greater comfort and mobility for the Bahrainis, but at the same time further straining their road building and maintenance programme.^{2/}

The economic policy of open doors and excessive personal and public consumption can no longer be pursued. Growing expenditures in productive and finance-related infrastructures, much more than increases in wage costs, are inflating the demand in the Bahraini economy. It is doubtful that the new offshore banking sector and the projects under realization will be able to generate new and substantial employment jobs in the near future while sustaining the Emirate's private and public expenditures.

1/ On the basis of a total population of 341,000 inhabitants in January 1978 and an area of 622 sq.km.

2/ "Some Structural Bahraini Problems", in: The Financial Times, London, Monday, 3 April 1978, Special Report on Bahrain.

All the oil-based economies are faced with the difficult task to reconsider sooner or later their pattern of personal and public consumption by implementing a long-term strategy aimed to cope demand with supply, and expenditures with resources. But in the case of Bahrain, with its growing shortage in the supply of oil, this task turns out to be urgent. Such a reconsideration of the consumption pattern implies a new policy of controlling imports by reducing the amount of their subsidization. It also calls for controlling profit transfers both in quantity and quality, by increasing the Government's share in joint profits and tax on the foreign stake of exports. Another aspect of such a new policy is to increase taxes on certain non-basic consumer goods including car petrol and alcoholic beverages.

This will necessitate a more rational management of production. A higher productivity does not necessarily imply a reduction in wages. To the contrary, such an action is not easy to justify nor practical to implement, may reduce social demand while dissuading young qualified nationals from joining the productive sectors and encouraging them to seek work in neighbouring countries.

SUMMARY OF THE STUDY

Bahrain is a very small country; it has an area of only 622 square kilometers, and its population is also of a very limited number, about 340,000 in 1978.

Its economy is characterized by rather unilateral resources, basically oil and gas, but these reserves are rapidly decreasing after several decades of systematic extraction of crude oil and active utilization of gas. Agriculture and fishing represent a small and gradually declining sector, while food importation is steadily growing, thus aggravating Bahrain's dependence on it.

The country has achieved substantial results in school enrolment and in education. There is a substantial labour force, but further industrial training is required. Limited resources and high consumption impede accumulation and investment in development.

Industry has been initiated by the multinational oil corporations which, in 1936, established a giant oil refinery. Quite recently, multinational aluminium corporations entered a joint-venture project together with the Bahraini government and took a large majority share in it. A few years later, due to price depression and other conjunctural difficulties in the aluminium business, most of these multinational corporations, however, withdrew from the Bahraini joint-venture project; later they launched a new scheme of manufacture redeployment and spread, displacing their new and future projects to bauxite-extracting countries other than Bahrain, such as Brazil, Australia and the Philippines, where aluminium will be produced more profitably. These multinational and other corporations sold back their global majority shares in the project to the Bahraini government. Therefore, the government had to buy the bigger part of them, thus in-

creasing its own equity and becoming the main shareholder. The Saudi Arabian state-owned company SABIC bought the other part, roughly one fifth of the total share. Although U.S. Kaiser Aluminium, one of the multinational corporations involved, stayed as an associate within the ALBA project, foreign partnership failed to last. Nevertheless, the ALBA project has developed into an almost bilateral (Bahraini-Saudi) one, controlled mainly by the Bahraini government. Thus, the Aluminium Bahrain joint venture, one of the first cases of international redeployment of new industrial projects in developing countries with oil and gas resources, revealed to be only a precarious venture quickly abandoned by the multinational partners, forcing its transformation basically into a government-controlled subregional project. The logical conclusion to be drawn here is that it is regional coordination rather than venturing jointly with multinational corporations which is sustaining the development of manufacturing in Bahrain. This is further confirmed by the recent decision of Bahrain's new associate in aluminium processing and manufacture, namely Saudi Arabia, to cancel the Saudi project of setting up an aluminium smelter in Jubail (Saudi Arabia). However, Dubai, another neighbouring Emirate, is pursuing the set-up of a new and competitive aluminium smelter.

But Bahrain's experience is not limited to aluminium manufacturing. In the oil-refining sector, the Emirate has a second and similar experience.

The decrease in oil supplies can be related to gradual abandonment by the multinational oil corporations which have been exploiting the Bahrain refinery since 1936, first on the oil-extracting sector, and now on the oil-processing sector. In order to run the refinery, which had been set up 25 years before Bahrain became a sovereign and independent state, the government had always been relying on substantial crude oil supplies from Saudi Arabia, and has now to seek more Saudi crude to provide its own share of feedstock for the refinery. The latter, after having turned into a joint venture, will be totally abandoned by the two oil multinationals and left to their associate, the Bahraini government.

Under the Concession Regime, constant and increasing supply of Saudi Arabian crude for Bahrain's oil refinery made the country's oil-processing industry dependent on subsidiary multinationals which supplied Saudi crude. Later, Saudi Arabia's takeover of a majority share in the crude sector in Saudi Arabia was followed by the takeover of the Bahraini government of a majority share in its domestic refining sector. Thus, the survival of the latter is becoming even more dependent on the support by the Saudi-Bahraini partnership.

Thirdly, Bahrain has experience in ship repairing. This simply proves the big potential of regional multilateral venturing to assemble the various indispensable factors necessary to set up strong and important infrastructural maintenance facilities related to oil in a small country with limited resources, as it is the case in Bahrain. Yet, the individual decision taken by an immediate neighbour, namely Dubai, to enter a similar and competitive venture jointly with some foreign associates, demonstrates the risk of commercial rivalry and competition which emerges whenever subregional coordination and sectoral planning are neither global nor synchronized.

This lesson may apply to a large extent to the strategy implemented for effectively establishing offshore and international banking: Kuwait, followed recently by the United Arab Emirates and Saudi Arabia, is developing the same financial schemes in the same region.

The future of the industry and of the whole economy seems to depend increasingly, in the next decade and beyond, on the way and the rhythm of their articulation in relation to that of the Gulf and other Arab industries and economies. Such an articulation will not follow a linear trend, but will materialize through the following categories of new options and policies:

1. Domestic options and policies implying
 - 1.1. Institutional measure to establish a national central planning body;
 - 1.2. Global and sectoral state-planning for the adoption

of long-, mid- and short-term strategies and plans of development which comprise agriculture and fishing, mining and further downstream manufacturing as well as infrastructures and services. The objective of the development of manufacturing must be to establish forward and backward linking industries while improving on a global scale productivity, production and increasing self-sufficiency;

- 1.3. adaptation of consumption largely to domestic production through a long-term strategy and subsequent mid- and short-term policies by reducing the share of non-basic consumer goods but increasing locally produced goods;
 - 1.4. pursuance and intensification of the training programmes to cope with the industrial and infrastructural development plans;
 - 1.5. revision of the foreign trade, both from the angle of its commodity structure and that of geo-economic spread and sharing, according to previous global and sectoral strategies and policies;
 - 1.6. a strategy to decrease the deficit with the main suppliers of the Emirate. In this respect we strongly recommend the elaboration of a long-term strategy and policy to promote manufactures and link their exportation to the country's main suppliers - the United Kingdom, Japan and South-East Asia - with Bahraini oil and gas sales to those countries. This means necessarily a re-orientation of trade to the Gulf and other Arab countries, in relation with the dynamic development of sectoral programming and integrating industrialization of the Arab region.
2. Regional options and policies implying
- 2.1. generalization, reinforcement and implementation of Gulf-wide and all-Arab schemes of industrialization and infrastructural development;

- 2.2. adoption and application of sectoral programming schemes for the main gas-based industries and hydrocarbon-related infrastructures, both on a Gulf-wide and all-Arab level;
- 2.3. adoption and implementation of corresponding investment schemes to sustain the two previous objectives;
- 2.4. relation of the industrialization and trade schemes to sustain the previous objectives.

To conclude, it must be pointed out that such major and extremely challenging strategic objectives and action-oriented programmes are not of a solely economic nature. They bear undoubtedly tremendous political implications for all the small Emirates facing oil depletion in perspective, but above all for Bahrain.

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