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HIGHLIGHTS OF THE HUMAN SETTLEMENTS SITUATION IN BAHRAIN

Country Profile

UNITED NATIONS
1987

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FOREWORD

Within the framework of the work programme of its Human Settlements Division, the United Nations Economic and Social Commission for Western Asia (ESCWA) has embarked on the preparation of country profiles on human settlements and the building materials and construction industries in all its member countries.

The profiles are not meant to be an end in themselves. Rather, they represent a foundation on which other studies can be based in an endeavour to achieve the twin goals of integrating the physical dimension of planning with the overall national socio-economic and environmental development planning and the development of local building materials and construction industries.

The profile is structured to present general information on the country, with emphasis being placed on physical, socio-economic, demographic and other aspects that affect or are affected by human settlements development, and includes data on the building materials and construction industries. Where applicable, the profile outlines declared government policies, objectives and strategies for the development of human settlements and of the building materials and construction industries. It includes the present situation as regards the institutions that have been set up and the manpower trained for the implementation of the declared policies and, where appropriate, it points out gaps, problems and constraints, as well as existing or potential opportunities that must be taken into account in formulating future policies and plans for the development of human settlements and the building materials and construction industries.

Follow-up action will include an in-depth analysis of the information contained in the country profile, the formulation of proposals and recommendations for the solution of existing problems with a view to achieving the twin goals mentioned above and, once all the countries of the ESCWA region have been covered, a set of indicators will be compiled and periodically updated which will provide the planners and policy makers with a useful tool for evaluating and monitoring the progress made in the development of the human settlements, building materials and construction industries.

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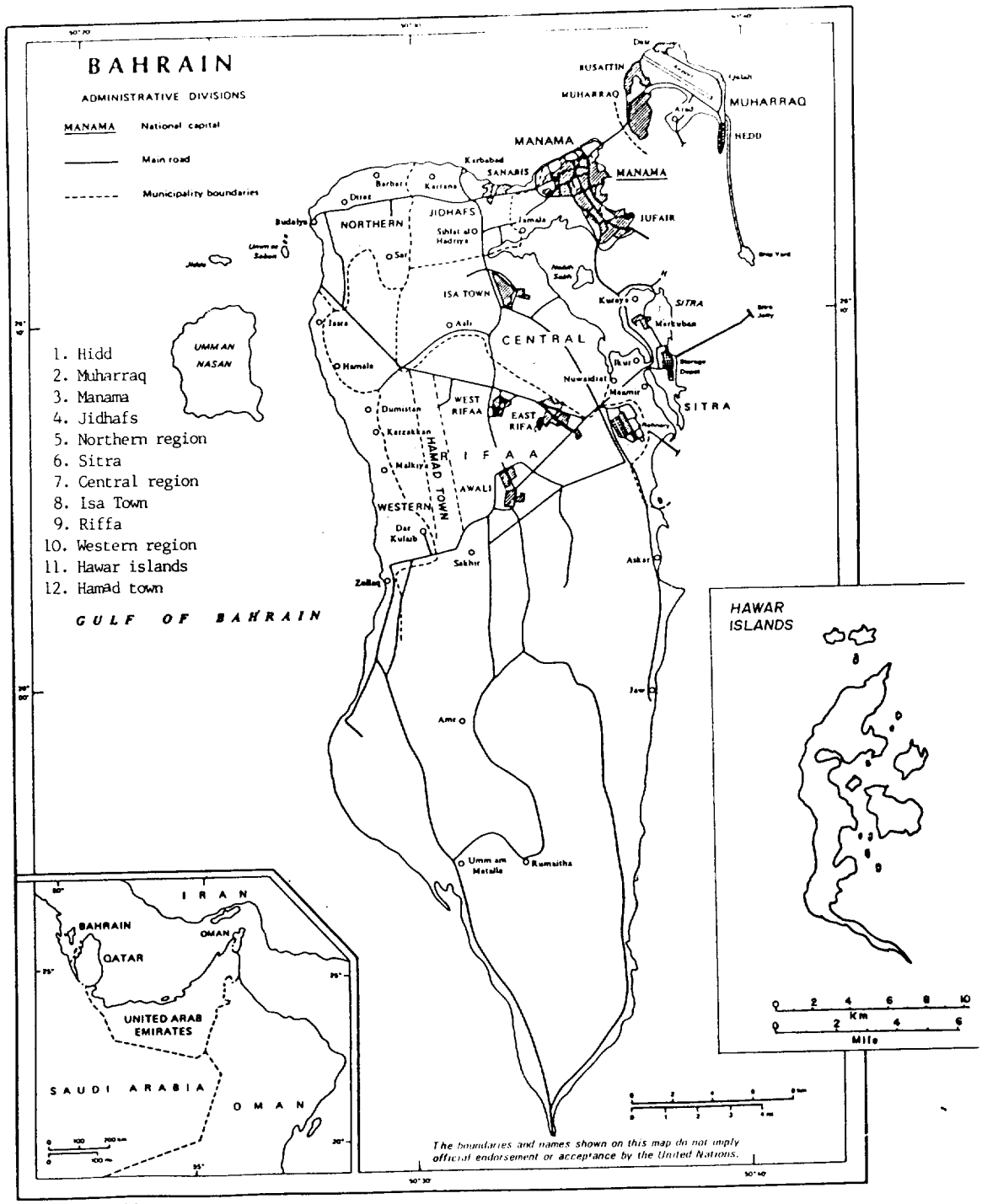
MAP 1 ADMINISTRATIVE DIVISIONS OF BAHRAIN



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I. BACKGROUND INFORMATION

A. Geography, climate and natural resources

The State of Bahrain is an archipelago of about 35 small, low-lying islands located in the Arabian Gulf. Bahrain Island is about 25 kilometres (km) off the east coast of Saudi Arabia. The total area of the State is 690.9 sq km. The largest and most important of the islands is Bahrain, which accounts for 85 per cent of the total area. Extensive land reclamation projects to increase the total land of the country are under way.

The climate of Bahrain is characterized by high summer temperatures, scarce and irregular rainfall, high relative humidity and a persistent wind from the north west. Frost does not occur.

Bahrain lacks abundant natural resources. It has limited mineral deposits, cultivable land and fresh water sources. The exploited fresh water springs are located in the northern parts of Bahrain Island, especially along the coast. Although oil is the primary raw material and generates the main economic activity, reserves are the smallest among the oil-producing countries of the region. There are also some limited raw material resources for the production of construction materials.

B. Administrative division

Bahrain has 12 administrative regions. The largest and smallest regions are Riffa and Hidd with about 292 and 5 sq km, respectively. The Manama Region has an area of about 25 sq km, and contains the largest portion of population of all the regions. In 1981, the Manama region had a population of about 122,000.

C. Population

Bahrain is one of the countries in the region with experience in comprehensive census-taking dating from the 1940s. The most recent census was conducted in 1981 when the population of Bahrain was 350,798, with 58.4 per cent males and 41.6 per cent females. The non-nationals constituted 32 per cent of the total population (75.5 per cent of the non-nationals were male), and tripled during the period 1971-1981. According to 1986 estimates of the United Nations Economic and Social Commission for Western Asia (ESCWA), the population of Bahrain was 434,724 (58.4 per cent male and 41.6 per cent female). Of the total population, 32.1 per cent was non-national, of which 75.4 per cent was male. The annual rates of population growth in Bahrain fluctuate between 2.4 per cent and 6.2 per cent, with the latter rate prevailing during the 1971-1981 period.

In 1986, 82.7 per cent of the population was living in urban locations (communities or villages of 2,500 or more) while the proportion of the population living in centres with 20,000 or more inhabitants was 72.2 per cent.

Table 1. Basic age groups 1971, 1981 and 1986

	1971					
	Male	Percentage	Female	Percentage	Total	Percentage
0-14	48,152	41.4	47,488	47.6	95,640	44.3
15-64	65,121	56.0	49,377	49.5	114,498	53.0
65+	3,041	2.6	2,899	2.9	5,940	2.7
Total	116,314	100.0	99,764	100.0	216,078	100.0

	1981					
	Male	Percentage	Female	Percentage	Total	Percentage
0-14	58,279	28.5	57,183	39.2	115,462	32.9
15-64	142,449	69.6	85,123	58.3	227,572	64.9
65+	4,065	1.9	3,699	2.5	7,764	2.2
Total	204,793	100.0	146,005	100.0	350,798	100.0

	1986[a/]					
	Male	Percentage	Female	Percentage	Total	Percentage
0-14	76,120	30.0	73,945	40.9	150,065	34.5
15-64	173,220	68.3	102,494	56.6	275,714	63.4
65+	4,457	1.7	4,488	2.5	8,945	2.1
Total	253,797	100.0	180,927	100.0	434,724	100.0

Source: Bahrain, Directorate of Statistics, Bahrain Census of Population and Housing 1981 (Bahrain 1982).

a/ Data for 1986 are ESCWA estimates.

The population of Bahrain is relatively young. In 1986, the 0-14 age group constituted 34.5 per cent of the total population. This rate is much higher for the Bahraini population if the non-nationals are excluded. The proportion of those in the older age group (65+) is decreasing.

According to the 1981 census, there were 58,854 households in Bahrain, 42.3 per cent of which were non-national. The number of households settled in urban locations was 48,513. The average household size was 6 persons (urban 5.8, rural 6.6). The most common household size, however, was 4 persons.

According to ESCWA estimates for 1986, there were 66,740 households, and 21,350 persons were living in a collective style in group quarters. The household size in 1986 was estimated to be 6.1 persons per household, if the population living collectively in group quarters is excluded. The household size for the total population was 6.4 persons and appears to have increased since 1981. For information on the size and distribution of households see table 2.

The projected population of Bahrain for 1991 is 490,800, with 293,600 males and 197,200 females. About 38 per cent of the population will be non-national. In the non-national population group, males will constitute approximately 75 per cent. The population projections for the year 2001 range from 561,700 to 680,300. About one third of the population will consist of non-nationals.1/

D. Economic and political developments

The government of Bahrain consists of a cabinet of appointed ministers, including several members of the ruling family and others selected from various sectors of the community. The Emir is the head of both the State and the government. The independence of Bahrain was formally declared in 1971.

Although its dependence on oil is declining Bahrain still has an oil-based economy; however, a government policy of economic diversification is being implemented. Declining oil revenues have reduced Bahrain's economic growth rate from the boom years of the 1970s. The gross domestic product (GDP) (in current prices) has in fact been declining since 1984. Oil and gas sales are expected to provide 82 per cent of total government revenue in the 1986-1987 biennium. Distribution of the GDP and employment by economic activity is presented in table 3.

1/ Based on projections in Bahrain. Directorate of Statistics, Bahrain Census of Population and Housing 1981: Trends and Prospects (Bahrain, 1983).

Table 2. Households and average size of households by region (urban and rural) 1981

Region	Urban[a/]		Rural[b/]		Total	
	Average size of household	No. of households	Average size of household	No. of households	Average size of household	No. of households
Hidd	5.2	1,370	-	-	5.2	1,370
Muharraq	6.2	9,257	7.2	576	6.3	9,833
Manama	5.2	22,315	6.3	1,102	5.2	23,417
Jidhafs	7.3	2,846	6.9	1,877	7.1	4,723
Northern	6.7	1,825	5.5	1,778	6.1	3,603
Sitra	7.4	1,302	7.5	1,774	7.5	3,076
Central	6.2	1,661	6.6	993	6.3	2,654
Isa Town	6.2	3,456	-	-	6.2	3,456
Riffa	6.0	3,731	5.0	1,150	5.8	4,881
Western	8.5	750	7.9	1,032	8.1	1,782
Hawar islands	-	-	-	3	7.0	3

Source: Bahrain, Directorate of Statistics, Statistical Abstract, (Bahrain, 1984).

a/ Refers to communities or villages of 2,500 or more population.
b/ Refers to communities or villages of less than 2,500 population.

Table 3. Gross domestic product and employment by economic activity 1976, 1981 and 1986

(Percentage)

Economic Activity	GDP (in current prices)			Employment		
	1976	1981	1986[a/]	1976	1981	1986[a/]
Primary	1.5	1.1	1.2	3.6	2.7	2.0
Secondary	48.8	49.4	41.0	38.2	34.9	34.4
Tertiary	49.7	49.5	57.8	58.2	62.4	63.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Bahrain, Directorate of Statistics, Statistical Abstract (Bahrain, 1984).

Ibid. Bahrain Census of Population and Housing 1981 (Bahrain, 1982).

a/ ESCWA calculations based on United Nations Economic and Social Commission, Demographic and Related Socio-Economic Data Sheets for Countries of the Economic and Social Commission for Western Asia, No. 5 (Baghdad, 1987) (E/ESCWA/STD/87/8) and other ESCWA sources.

At current rates of production, the oil reserves of Bahrain will be exhausted before the year 2000. The reserves of natural gas are quite rich and will last for a longer period. The contribution of agriculture and fishing to the economy of Bahrain is minimal. Though there has been significant progress in poultry and dairy production, the country is generally dependent on imports for its food supplies.

Bahrain is one of the most industrialized countries in the region. The policy of the government is to develop export-oriented heavy industry but the development of light industry is also supported by the provision of cheap land and services to entrepreneurs at certain locations. Banking and insurance are very advanced and a key sector of the Bahraini economy.

II. LAND AND SETTLEMENT PATTERN

A. Settlement Pattern

The earliest inhabitants of Bahrain were hunting tribes. Later the island became a major port of call on sea trade routes between Mesopotamia and India and around 3000 B.C., Bahraini seamen built the first city on the island. The Muslim conquest of the Middle East occurred in the seventh century and Bahrain changed hands many times until the 18th century. In 1783, Bahrain was conquered by tribes from the north, who settled on the island and established the present rule.

With its highly urbanized population and settlement pattern, which has the characteristics of a single agglomeration with extensions and suburbs, Bahrain may be considered a city state. Settlements with more than 2,500 inhabitants are defined as urban in Bahrain.

In 1981, the Manama region had 40.6 per cent of the total urban population, followed by Muharraq with 20.4 per cent. The Sitra region, with 13,375 persons, or 19.8 per cent of the total for Bahrain, had the highest rural population both in absolute and relative terms. In 1981, 80.7 per cent of the total population was urban and the overall population density was 533 persons/sq km. The highest densities were observed in the regions of Manama and Muharraq with 5,083 and 3,990 persons/sq km, respectively. Excluding Hawar island, the lowest densities were observed in the Western Region and Riffa. The density was less than 100 persons/sq km in both of these regions. In 1986 the population density in Bahrain was 629 persons/sq km. The total land of Bahrain, however, was larger in 1986 than in 1981, owing to land reclamation projects. Absolute and percentage distribution of urban and rural population by region is presented in table 4.

The urban agglomeration is located at the north and north-east parts of Bahrain island. The regions of Manama, Muharraq, Jidhafs and Al-Hidd had about 65 per cent of the total population in 1981. The population density tends to decrease from the centre of Manama towards the periphery. The newly developing region, Hamad Town, however, will have a high density pattern after construction is completed.

In 1981, the population in the Manama region was about two times larger than the second largest populated region, Muharraq, and 3.6 times larger than Jidhafs, the third largest populated region. The population movements in Bahrain do not have a significant effect on the settlement pattern.

B. Land

Unused land in Bahrain accounts for about 30 per cent of the country's total. Oil fields and quarries cover about 25 per cent of the land while 15 per cent is devoted to residential use. Of the remaining land, agricultural

use requires about 10 per cent and industry 4 per cent while open space, cultural and recreational land use, and public institutions and public utilities, about 5 per cent. The combined transportation and communication activities also use about 5 per cent of the total land.

Table 4. Absolute and percentage distribution of urban and rural population and population density by region 1981

Region	Urban		Rural		Total population		Population density
	Percentage	Number	Percentage	Number	Percentage	Number	Persons/km^2
Hidd	2.5	7,111	-	-	2.0	7,111	2,032
Muharraq	20.4	57,688	6.2	4,165	17.6	61,853	2,032
Manama	40.6	115,054	10.2	6,932	34.8	121,986	5,083
Jidhafs	7.3	20,783	19.1	12,910	9.6	33,693	1,982
Northern	4.4	12,318	14.5	9,799	6.3	22,117	623
Sitra	3.4	9,618	19.8	13,375	6.6	22,993	987
Central	3.6	10,220	9.7	6,556	4.8	16,776	516
Isa Town	7.5	21,275	-	-	6.1	21,275	2,914
Riffa	7.9	22,408	8.5	5,742	8.0	28,150	94
Western	2.3	6,367	12.0	8,136	4.1	14,503	97
Hawar Island	-	-	0.0	21	0.0	21	-
Off Island[a/]	0.1	320	-	-	0.1	320	-
Total	100.0	283,162	100.0	67,636	100.0	350,798	533

Source: Bahrain, Directorate of Statistics, Statistical Abstract (Bahrain 1985).

a/ By 1986, Off Island was known as Hamad Town.

The land ownership pattern in Bahrain is similar to that of other States in the region. The types of tenure include: private, public (belonging to the State or public authorities) and waqf (Islamic religious endowment). A large quantity of land belongs to the Emir. Diffusion of land ownership has accelerated in the last two decades and in urban areas ownership has become quite fragmented. The land gained through reclamation belongs to the government and is utilized in several ways. It provides sites for public projects, it is traded for expropriated private land or it is sold to developers.

Land development procedures in Bahrain may be analysed in two categories: (1) public sector developments, which entail the acquisition, reclamation and

exchange of lots and (2) the development of subdivisions by the private sector. Land is acquired by the government mainly by purchase through compulsory sale, and by agreement. The compensation for land acquired through compulsory sale generally has been satisfactory.

Privately owned land can be subdivided into smaller plots or consolidated into larger ones in accordance with current master plans for development which are the responsibility of the Municipality, and of the Ministry of Housing. The Land Registration Department of the Ministry of Justice and Islamic Affairs is responsible for land registration activities. The Real Estate Registration Law of 1979 provides the legislative framework for land ownership and related activities.

There is no real estate tax nor capital gains tax and the fees collected by public authorities at the time of real estate transactions are very low.

Land prices soared between 1970 and 1980, and stabilized in the mid-1980s. According to a survey conducted in 1985, the most expensive plots are those exclusively zoned for business activities and located in central Manama where land costs 200-300 Bahrain dinars (BD) (approximately $US 500-800) per square foot. Elsewhere in the Manama region the 1985 land costs varied between BD 20-200 ($US 50-500) per square foot.

As land is very scarce in Bahrain, the Government gives utmost importance to its rational and efficient use. Land registration is well organized and relevant legislation well formulated. The government distributes free plots to low and middle income households as a means of spatial planning as well as of social welfare. More than 4000 plots have been distributed by the Ministry of Housing. Land reclamation has been the basic source of land development and is likely to increase.

III. PHYSICAL DEVELOPMENT PLANNING

Physical Planning in Bahrain is considered an integral part of economic and social development. Four-year development programmes are prepared by the Ministry of Finance and National Economy. The physical planning dimension of this general development programme is carried out within the activities of the Ministry of Housing, which co-ordinates and integrates all issues dealing with the use of space by the other Ministries and public authorities. The preparation of a national land use master plan which will integrate all current studies and plans is at present a high priority.

The first physical planning studies date from 1968, when a Physical Planning Unit was established in the Ministry of Municipalities and Agriculture. Partial urban design rather than comprehensive planning was the focus of these studies almost all of which were carried out by foreign consultants. In 1975 the planning unit was transferred to the Ministry of Housing. The newly reorganized Physical Planning Directorate reviewed all the previous plans and took measures to implement the major features of the various proposals. In 1978 the Department of Surveying was established. The implementation of plans did not generally take into account serious financial problems. Furthermore, the sale and utilization of reclaimed land has enhanced both the financial and functional aspects of these undertakings.

The first municipal organization in Bahrain and, in fact, in the entire Gulf region, was established at Manama in 1919. A reorganization in 1973 resulted in 12 municipalities, namely Manama and 11 branches. The Central Municipal Authority controls, supervises, and manages all municipal activities.

In 1981 there was a revision of zoning regulations which set conditions for and categories of construction. In the area defined as the diplomatic zone, for example, regulations for the commercial facade category authorize multi-purpose buildings with the highest floor/area ratio (7 to 1) and number of storeys (20). Other measures provide for the preservation of the nature and settlement patterns of older neighbourhoods. New industrial buildings are subject to zoning and to specific construction codes. For some locations, rental housing investments are encouraged by building permits which allow a high floor/area ratio and high-rise construction. The branch municipalities responsible for the area where the proposed building will be located receives applications for permits and forwards them to the Central Municipality, which licenses and regulates construction. The Ministry of Housing is responsible for spatial plans and co-ordinates various other aspects of planning with the Central Municipality and the Ministry of Works, Power and Water.

Approximately 90 per cent of all commercial activity in Bahrain takes place in the Manama region. The development plan for this region pertains to 2,000 hectares, about 56 per cent of which is allocated to residential use, 11 per cent to parks, recreation and cemeteries, and 13 per cent to social services. Forty per cent of the residential land already has buildings on it.

The spatial standards set by the Ministry of Housing for the newly developing areas deal with health, education, commerce, parking requirements, and several social services. Some of these provisions are already in effect. Many of the light industrial plants are located in the two major industrial zones; Mina Sulman, which is near the major port, and North Sitra. The Ministry of Development and Industry allocates land at these locations to developers at convenient terms.

Planning new settlements has been the most significant characteristic of the urban development strategy of Bahrain since the mid-1960s. The first new settlement was Isa Town, established only 8 kilometres from the centre of Manama and designed to accommodate 35,000 inhabitants. By 1981 its population had reached 21,000, or 7.5 per cent of the urban total.

The success of the Isa Town Project led to a second project, Hamad town, located in the western-central part of Bahrain Island, about 15 kilometres from the centre of Manama. The town is in the shape of a narrow rectangle, 9 kilometres by 1.5 kilometres, which lies north-south. Designs call for 11 neighbourhoods to accommodate 10,000 households. By the end of 1986, the construction of around 5,000 housing units had been completed.

Apart from comprehensive planning studies and implementation of new town projects, the Bahraini Government has recently given priority to urban revitalization projects, particularly at Manama and Muharraq, the two oldest and most densely built regions in the country. In charge of these studies is the newly formed Physical Planning Directorate, within the Ministry of Housing. The Manama Urban Revitalization Project has identified an area of about 190 hectares, with 44.7 per cent of the properties designated as in poor or very poor condition. Only about 20 per cent of the properties were deemed viable, with little or no maintenance required for the subsequent 15 to 20 years.

The Environmental Protection Committee, and Environmental Protection Technical Secretariat were formed in 1980. The Committee, composed of 10 members (8 of which are Ministers from the Ministries concerned) is under the Office of the Prime Minister and is responsible for policy issues. The overall function of the Technical Secretariat is to manage and co-ordinate all programmes relating to environmental research, studies and pollution control.

IV. HOUSING

The Ministry of Housing is the authority responsible for housing questions in Bahrain. The Housing Bank, an affiliate of the Ministry of Housing, is responsible for the financial aspects of the housing projects of the Ministry; in addition the Bank makes housing loans and develops its own projects. Some of the responsibility for housing is assumed by the Ministries of Defence and Interior, which construct housing for their employees. In fact, the public sector has constructed about one fourth of the total housing stock in Bahrain. The housing stock nearly doubled between the two censuses in 1971 and 1981. Since 1981, the housing stock grew at around 5 per cent annually. In 1985, the number of housing units totalled 62,942 and there were 98 housing units per 100 households as against 90 in 1981. The number of housing units accommodating single households has been increasing. In 1981, 6.3 per cent of the total housing units accommodated more than one household. Information on housing stock is presented in tables 5 and 6.

According to information drawn from the building permits, annual housing production in Bahrain has been around 3,000-3,500 units in recent years, with private and public construction around 2,500 and 1,000 units respectively. The majority of the housing units constructed are of the independent type (in gardens) and only about 10 per cent of the annual production has been allocated to apartments. The number of newly constructed housing units has been quite high in Bahrain, averaging about 8 constructed housing units annually per 1,000 inhabitants in recent years.

Table 5. Number of housing units, urban and rural and inhabitants per housing unit for 1965, 1971 and 1981

Years	Urban	Per cent	Population/ housing unit	Rural	Per cent	Population/ housing unit	Total	Population/ housing unit
1965	21,488	81.7	6.67	4,812	18.3	8.09	26,300	6.92
1971	25,841	83.0	6.53	5,204	17.0	9.08	31,045	6.96
1981	43,848	83.0	6.45	8,962	17.0	7.55	52,810	6.64

Source: ESCWA calculations based on Bahrain, Directorate of Statistics, Statistical Abstract (Bahrain, 1984).

In 1985, the Manama region had 29.7 per cent of the total housing units, followed by Muharraq with 17.7 per cent, and Riffa with 11.6 per cent. In 1981, 83 per cent of the housing stock was in urban locations. The housing units in Bahrain accommodated an average of 6.64 persons.

The number of persons per housing unit in the urban areas is less than in rural areas and has continuously declined since 1965. In 1981, there were 6.45 and 7.55 persons per housing unit in urban and rural areas respectively.

Table 6. Number of housing units, rooms, rooms per unit, and inhabitants per room for 1971 and 1981

Years	Population	Number of housing units	Number of rooms[a/]	Rooms/ housing unit	Population/ housing unit	Persons/ rooms
1971	216,078	31,045	92,302	2.97	6.96	2.34
1981	350,798	52,810	188,859	3.58	6.64	1.86

Source: ESCWA calculations based on Bahrain, Directorate of Statistics, Statistical Abstract (Bahrain, 1985).

a/ Housing units in census data with six and more rooms are accepted as having seven rooms.

The housing stock in Bahrain, according to the 1981 census, was classified as villas (8.4 per cent), flats (22.1 per cent), traditional Arab housing (45.4 per cent), conventional housing (17.6 per cent), compounds (3.4 per cent) and others (3.0 per cent). The most common housing size in Bahrain in 1981 was three rooms, accounting for 24.5 per cent of the total stock. Four-room houses accounted for 20.1 per cent of the stock; 17.9 per cent had two rooms, while one-room dwellings accounted for 11.8 per cent. Between 1971 and 1981, small housing units with one and two rooms decreased about 18 per cent but this was compensated for by an increase in units of four or more rooms. In both the 1971 and 1981 censuses, the share of three room-units remained constant. According to a study conducted in 1976, 31.2 per cent of housing stock in 1974 was beyond repair and had to be replaced. In the late 1980s, however, due to the high rate of housing construction, the proportion of low quality units is believed to be much lower.

Of the total 1981 housing stock, brick is the major construction element in 68.7 per cent of dwellings, stone in 16.4 per cent, reinforced concrete in 8.5 per cent, prefabricated elements in 4.6 per cent, and other materials in 1.8 per cent. Furthermore, 97.5 per cent of the houses were connected to running water, 44.7 per cent were connected to sewerage and 98.4 per cent of the housing units had electricity. Of the total housing, 88.0 per cent had kitchens, 93.7 per cent had bathrooms and 88.8 per cent had air conditioning.

Units of the villa-type had the best facilities, followed by conventional and traditional Arab types. In 1981, the majority of Bahraini households were in traditional Arab housing units, whereas flats were the most common type among non-nationals.

In 1981, the home ownership among Bahraini households was 82 per cent. Non-national households were generally tenants or rent-free residents. For the country-wide total, members of 48.6 per cent of the households in Bahrain owned their houses, 29.9 per cent were tenants paying rent in cash and 20.1 per cent were accommodated free of rent. In 1981, about 90 per cent of the tenants were paying monthly rents of less than BD 150 ($US 400 approximately) and more than 53 per cent were paying less than BD 50.

In 1986 the cost of housing construction per square meter was around $US 200-320 for moderate quality, and around $US 540 for high quality. These prices have been quite stable for the last ten years.

Construction of housing is generally financed by private savings. The Ministry of Housing and the Housing Bank are the public authorities providing housing loans. Bahraini citizens may apply for Ministry-built housing units or loans for housing construction, for maintenance or for purchase previously constructed units. Citizens may also apply to receive free plots for housing construction. There are some eligibility conditions for these programmes, with preference given to government employees. The Housing Bank, which was established in 1979 gave loans to about 3,500 households in the period 1980-1985. The annual loan programmes cover about 600 households. The average loan in 1985 was BD 16,375. The loans are paid back in 25 years without interest, but the borrower must pay a small service charge. The Bank owns some commercial real estate which is leased.

Housing has been a priority in the development efforts of the Government for several decades. In the most recent development programme, housing accounts for 17 per cent of all Government expenditures. By the end of 1986, the Ministry of Housing had constructed and distributed more than 12,000 housing units and also distributed about 4,000 plots. The Ministry owns more than 2,000 housing units, which are leased to candidates who have applied for housing. Ministry of Housing develops large-scale housing projects within programmes for new towns. In addition to the projects for Isa Town and Hamad Town, the Ministry of Housing is undertaking preliminary studies for a third new town project for 60,000 inhabitants, which will be located on reclaimed land that forms an artificial island. The housing projects undertaken by the Ministry in Hamad Town recently, have been 2 and 3 bedroom types, with one and two-storey options for lots with areas of 84 to 136 square metres. By 1982, 35 per cent of the total and 68 per cent of the Bahraini population had benefited from the programmes of the Ministry of Housing.

V. INFRASTRUCTURE

A. Technical infrastructure

1. Water and sewerage

The Ministry of Works, Power and Water is responsible for infrastructure issues in Bahrain. Water is obtained from underground sources and through desalination, with underground sources providing the larger share until 1985. In 1985, 46.4 per cent of the water provided came from wells. In the period 1981-1985 the total water production increased more than 50 per cent. The per capita production (also consumption) of water totalled 416 and 518 litres/day in 1981 and 1985, respectively. Almost all the housing units in Bahrain are connected to the water network. In 1971, 92.8 per cent of the housing stock had running water; this figure increased to 97.6 per cent in 1981. The cost of obtaining water through desalination is quite high and the unit cost of water more than doubled from 1984 to 1985. In Bahrain, the price of water to the consumer is highly subsidized. The average sale price of water per unit has been between 6 and 11 per cent of the cost of production (depending on whether or not depreciation is included). The consumers are charged progressively as their level of consumption gets higher, and because of this the Ministry is planning to have a higher level of cost recovery.

Bahrain has quite an efficient sewerage system the construction of which has been continuing for the past 10 years. Currently, more than 500 kilometres of sewerage pipes are functioning and about 50 per cent of the population is served by the system. The rest of the population mainly uses septic tanks or other means. The sewerage services, including the connections to houses, are free of charge. There is a small charge for the discharge of septic tanks. About 75 per cent of the discharges are made by the Municipality, the rest by the Ministry. There are currently two sewerage treatment plants in Bahrain. There are studies to double the capacity of the Tubli plant to serve about 400,000 people. In the latest development plan, which accounts for 19 per cent of the total budget, water and sewerage programmes are the second largest item of government expenditure after power.

2. Electricity

The Ministry of Works, Power and Water is responsible for the generation and distribution of electricity. There are currently four plants for electricity production. The station in Sitra produces about 60 per cent of the total. In 1985 2,636.5 million kilowatt-hours of electricity, or about 20 per cent more than in the previous year, were generated. The installed capacity and energy generated have increased about 6.8 and 5.1 times, respectively, in the period 1971-1985. Of the housing stock, 98.4 per cent had been connected to electric power in 1981. This figure was 94 per cent in 1971. Electrical power in Bahrain is subsidized but the subsidy level is far less than that for water. The price paid by the consumers covers production

cost excluding depreciation; charges are progressive with consumption. Electricity is the largest expenditure item in the latest development plan and accounts for about 23 per cent of the total.

Table 7. Technical service indicators

Technical service	Years 1971	1981	1985
Water and Sewerage			
Percentage of housing units connected to water network	92.8	97.6	
Production/consumption of water (litres/person/day)		416	518
Percentage of housing units connected to sewerage system[a/]	29	45	50[b/]
Percentage government budget allocation[c/] for water and sewerage			18.7
Electricity			
Percentage of housing units connected to electricity	94.0	98.4	
Installed capacity per person (kw/p)	3,096	13,310	20,926
Generated energy per person (kwh/p)	1,192	4,517	6,065
Percentage of government budget allocation[c/] for generation and distribution of electricity			22.9
Transport			
Number of cars (including taxis) per thousand persons		145.7	188.1
Number of busses per thousand persons		5.2	6.6
Number of vans and lorries per thousand persons		44.9	52.0
Percentage of government budget allocation[c/] for construction and maintenance of roads			5.7

Source: ESCWA calculations based on national and international sources.

a/ Not including septic tanks and other systems.
b/ For 1986.
c/ Refers to the last development plan period (1982-1985).

3. Transportation and telecommunications

Bahrain is one of the most advanced countries in the region in the sectors of transport and communications. The number of registered vehicles increased some 10 per cent between 1984 and 1985. In 1985 there were 1.22 private cars per household. The public transportation system is quite efficient and highly subsidized. Since 1983, urban transportation has been developed according to a transportation master plan. The 25 kilometres causeway between Saudi Arabia and Bahrain is now in operation and is expected to have profound effects on the economy and settlement pattern of Bahrain.

The rapid growth of cargo traffic through Bahrain ports during the 1970s, has now slowed down. Owing to the use of containers and possibilities for transhipment, however, Bahraini ports are still important. While fewer vessels called at Bahrain in 1985 than in 1984, the volume of cargo showed increases for the period 1980-1985. Passenger transport by sea has not been very important and with the causeway is expected to decrease further. Bahrain airport is one of the busiest airports in the region. In 1985 the average daily number of planes landing and taking off was 55. The airport facilities have been upgraded recently. Gulf Air, jointly owned by Bahrain, Oman, Qatar and the United Arab Emirates, is the national airline and has its headquarters in Bahrain. The telecommunication system in Bahrain is extremely advanced with 70,000 telephone and 2,018 telex subscribers in 1985.

B. Social infrastructure

1. Education

Regular education in Bahrain started in 1919 with the establishment of the first boys' school in Muharraq. The illiterate population decreased from 53 to 27 per cent of the total between 1971 and 1981. In 1984-1985 the number of university students was around 4,500, in addition to the 1,600 Bahraini university students studying abroad. Females made up 48 per cent of the students at the primary, intermediate and secondary levels, 46 per cent of university students, and 73 per cent of participants in 67 adult education centres.

In 1985, there were 35.9 students per classroom in primary schools. This figure was 35.5 and 29.1 for the intermediate and secondary schools. There were 195 educational facilities in Bahrain in 1985, and an average of 323 housing units per educational facility but the distribution of these facilities by region was not very even. The Sitra Region had the best ratio with one educational facility for every 274 housing units. The Central and Northern Regions had the poorest ratio with 701 and 560 housing units per educational facility, respectively.

2. Health

In 1985, Bahrain had 49 governmental health facilities, three of which were main hospitals, as well as one military and three private hospitals. These facilities were concentrated in the regions of Manama, Muharraq and Riffa. There were 7,970 inhabitants for each health facility in 1985. The number of inhabitants per physician was about 870.

Table 8. Social service indicators

Social Service	Years 1979/1980	Years 1984/1985
Education		
Average number of students per classroom		
- Primary schools	34.7	35.9
- Intermediate	39.4	35.5
- Secondary with religion	30.3	29.1
Average number of students per teacher		
- Government schools	18.9	17.2
- Private schools	19.8	14.5
- Kindergartens and nurseries	41.4	32.8
University enrolment ratio[a/]	10.6	8.2[b/]
Health		
- Hospital beds per thousand inhabitants	3.2[c/]	3.4[e/]
- Number of inhabitants per physician	854[d/]	872 [e/]

Source: ESCWA calculations based on Bahrain and international sources.

a/ 20-24 age group.
b/ Not including part-time students.
c/ For 1981.
d/ For 1982.
e/ For 1985.

VI. BUILDING MATERIALS AND CONSTRUCTION SECTOR

A. Building materials

Raw materials for construction activities are limited. Commercially exploitable deposits of gypsum, clay/kaolin, limestone, sand, building stones, marble are known to exist, but the extent of reserves is not known. there are no relevant mineral resources. Gypsum is found at different depths, intermingled with thin beds of dolomite and marl. Clay deposits are basically found in two locations and they are about 15 metres thick. One of the deposits has clay with high percentage of calcium and carbonate. Limestone deposits are located in the Rus area. In 1983, there were three companies working in lime production. Dolomite reserves are located at the east central side of the island and are extensively exploited.

Table 9. Cement production and consumption in Bahrain 1976-1985

(Tons)

Years	Quantity produced	Quantity consumed	Average per capita consumption (kg) (in kilogrammes)
1976	80,000	-	-
1977	160,000	-	-
1978	200,000	-	-
1979	240,000	-	-
1980	298,000	332,445	978
1981	362,000	409,105	1,170
1982	438,377	655,754	1,770
1983	282,559	627,435	1,650
1984	221,769	685,189	1,710
1985	228,867	530,867	1,280

Sources: - Organization of Arab Union for Cement and Building Materials, Present Status and Future Trends of the Cement Industry in the Arab World, 1984.

- Gulf Organization for Industrial Consultancy, The Industry and Consumption of Cement in the Gulf States, Second Technical Meeting, Baghdad, 1987.

Table 10. Imports of major construction materials, 1985

Materials	Weight (tons)	Value (Thousands of BD)	Principal Origin (country)
Marble and other stone (crude and worked)	1,190,478	5,308	Italy, United Arab Emirates, Cyprus
Gypsum and plaster	13,186	281	Spain
Sand, clay, lime	1,631	68	Netherlands, United Kingdom, United Arab Emirates.
Materials made of wood	1,486	8,011	Taiwan, Netherlands
Wall paper	50	118	United Kingdom
Cement (clinker, portland and other)	560,555	8,677	Republic of Korea, Japan
Bricks (asbestos, cement, refractory, sand, lime, concrete, etc..)	16,013	2,094	United Kingdom, Sweden, Belgium, United Arab Emirates
Tiles (roofing, ceramic, cement, concrete)	34,254	3,774	Italy
Glass sheets	3,711	1,013	Federal Republic of Germany
Iron, steel products	84,967	15,455	Japan, United Kingdom, Australia, India
Aluminium products	134	492	United States of America, Netherlands

Source: Bahrain, Central Statistical Organization, Foreign Trade Statistics, for 1985, (Bahrain, June 1986).

There are about 20 plants producing building materials; the basic materials produced are cement, bricks, limestone tiles, concrete blocks, paints and aluminium products. The local clinker grinding plant, which started production in 1976, with a designed capacity of 126,000 tons/year, is the only cement factory in the country. In 1982 it employed 52 people, the majority of the employees were from the Republic of Korea and India; The plant is periodically maintained by the parent company, Hyundai. The annual cement production capacity in Bahrain was 450,000 tons in 1986 and about 34 per cent of this capacity was utilized. Local production provides 42 per cent of the consumption.

Iron and steel used in construction activities are imported. In 1985, the amount of iron and steel imported was about 85,000 tons. The projected demand for iron and steel products in Bahrain is estimated at 116,000 tons for 1990, 143,000 tons for 1995, and 170,000 tons for 2000.[1/]

Information on the imports of basic construction materials in 1985 is presented in table 10. The construction material imported in the largest quantity in 1985 was crushed stone, followed by cement and iron/steel products. In terms of value, however, iron and steel products had the highest figure.

B. Construction sector

The construction sector in Bahrain is still active despite falling oil revenues and the government's austerity measures. The volume of infrastructure work has decreased recently, but large projects, especially the construction of industrial plants is still going on. The GPIC Petrochemical Complex and the GARMCO rolling mill projects are two examples. Other major projects include the construction of the Arab Gulf University, and the Civic Centre Complex in Manama. The ongoing work on the new settlement project of Hamad Town also constitutes continuous and substantive construction activity, in addition to the construction of housing in other parts of the country.

The GDP value assigned to construction was the highest in 1984 and decreased by 16.7 per cent in 1985 and by an additional 10 per cent in 1986. The gross fixed capital formation (GFCF) was also the highest in 1984. It decreased by 9.5 per cent in 1985 but may have increased slightly in 1986. All in all, the vitality of the construction sector in Bahrain has been maintained despite some negative factors. The situation with regard to real estate, however, has been less promising and indicates an eventual decrease in building construction, particularly business premises.

1/ United Nations Economic and Social Commission for Western Asia and United Nations Industrial Development Organization, Iron and Steel Industry in the ESCWA Region, (Baghdad, July 1987) (E/ESCWA/ID/87/6).

Table 11. Construction indicators
(Current prices)

	1976	1981	1985	1986
1) GDP in construction (millions of BD)	47.8	113.6	154.4	139.0
2) GDP in construction as a percentage of total GDP b/	8.0	7.0	8.8	8.5
3) Total GFCF (millions of BD)	249.3	467.5	732.9	791.0
4) GFCF c/ per capita (BD)	885.4	1,332.7	1,735.1	1,819.6
5) Total GFCF as a percentage of GDP	41.6	28.9	41.8	48.3
6) Employment in construction	-	29,208	42,759 a/	38,444
7) Employment in construction as a percentage of total employment	-	21.2	38.3 a/	21.0

Source: ESCWA calculations based on Bahrain, Directorate of Statistics, Statistical Abstract, (Bahrain, 1985) and ESCWA sources.

a/ Employment registered with social insurance system.
b/ GDP = Gross Domestic Product.
c/ GFCF = Gross Fixed Capital Formation.

Bank loans for construction activities have been declining since 1983, when the share of the construction sector constituted 31.2 per cent of total lending. In 1984 and 1985 these percentages dropped to about 27 per cent.

There are two factors which are likely to affect the future of the construction sector in a positive way: the Bahrain-Saudi Causeway and new legislation regarding condominium ownership. The causeway will make Bahrain more accessibile and will probably increase demand for all kinds of space, in particular for offices and business facilities. The condominium law which allows the ownership of a part of a building or of an apartment will promote the utilization of small local savings on one hand, and attract new capital to the real estate market, both local and from the Gulf region, on the other. The effects of these two positive factors however, may not be reflected in the construction sector in the short run since there is already a current stock of eligible real estate on the market.

The Ministry of Works, Power and Water is responsible for all the construction works of the Government except for the projects of the Ministries of Housing, of Defence and of Interior. The Ministry of Commerce keeps the records of construction companies, and the Ministry of Works, Power and Water keeps the list of contractor companies which apply for government tenders. Foreign companies have to be partners with a local company or at least have to have a Bahraini agent. In 1985, there were 603 establishments in the construction sector included in the social insurance system.

In 1985, 2,445 Bahrainis and 40,288 non-nationals were registered in the social insurance system in the construction sector. This accounted for 38.3 per cent of all employment registered with the social insurance system. The share of the non-nationals was 94.2 per cent. According to the 1981 census, the number of people employed in the construction sector (29,280 people) constituted 21.2 per cent of the total work force in all sectors of employment. The number of females working in the sector was negligible, whereas non-nationals constituted 86.8 per cent of workers in construction. The estimates for 1986, foresee a decrease to 21.0 per cent in the percentage of construction employment.

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