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Human Settlements Division

**HIGHLIGHTS OF THE  
HUMAN SETTLEMENTS SITUATION  
IN QATAR**

**Country Profile**

**UN ECONOMIC AND SOCIAL COMMISSION  
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## FOREWORD

Within the frame work 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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## I. BACKGROUND INFORMATION

The State of Qatar is an independent shaikhdom, ruled by Shaikh Khalifa bin Hamad Al Thani since 1972. Qatar declared its independence in 1971 and, shortly after, became a member of the United Nations and of the League of Arab States. A provisional constitution was promulgated in April 1970, while the Council of Ministers was set up in June 1970. In 1972, an Advisory Council to Shaikh Khalifa was formed as provided for in the constitution.

The country comprises the Qatar Peninsula and a set of islands in the Arabian Gulf. It is situated half-way along the southern coast of the Gulf and has an area of about 11,427 sq km, including the islands. The country is about 200 km long and, at its greatest width from east to west, is about 90 km. Geological formations in the country consist mainly of gypseous and calcareous clays, sand, sandstones, limestones, clayed sandstones and conglomerates. However, commercially exploitable minerals are scarce. In Qatar clay and gypsum are exploited for the manufacture of cement, and sand and gravel are used extensively for construction purposes. Other building materials are also extracted from quarries belonging to the Government and are sold to the private sector at advantageous prices in an effort to encourage the construction industry in the country. Also, studies are being undertaken on the possibility of exploiting asbestos deposits in the Haloul area. A technical survey made in 1986 revealed new deposits of gypsum, clay and sand of significant economic importance. The country is characterized by a flat landscape with areas of vegetation concentrated in the north, while the south is arid and covered by sand and salt flats. The climate is very humid - sometimes exceeding 90 per cent - with hot summers and short, warm winters.

Data on the size and composition of the population of Qatar are particularly difficult to obtain, and although a Population and Housing Census was carried out in 1985, at time of writing (the end 1987) the results have not

Table 1. Estimated population by age group  
(In thousands)

Age group	1970	1980	1985
0-14	41	73	109
15-64	68	148	201
65+	2	3	5
Total	111	224	315

Source: United Nations, Department of International Economic and Social Affairs, World Population Prospects: Estimates and Projections as Assessed in 1984. (New York, 1986). (ST/ESA/SER.A/98)

been published. One other census was made in 1970. In 1985 the population of Qatar was estimated to be around 315,000 (see table 1). Estimates of the percentage of Qatar citizens in the total population vary between 25 and 40. The median age of the total population is 23.9 years, while the dependency ratio is 56.7 per cent (54.1 per cent for the 0-14 age group, and 2.5 for 65+).

The proportion of non-Qatar citizens living in Doha is higher than in the rest of the country owing to the concentration of employment opportunities in the capital. According to the 1983 "Household Expenditure Survey of Doha and its Surroundings", approximately 23 per cent of the population of Doha were Qatar citizens, while only 15 per cent of the households were headed by Qatar nationals (see table 2). This difference is reflected in the fact that, while the average size of households headed by Qatar nationals was 8.6, the average size of households with non-Qatar heads was only 5.1.

Table 2. Estimated distribution of households according to size and nationality of household head in Doha, 1983

Household size	Qatar		Non-Qatar		Total	
	Households	Persons	Households	Persons	Households	Persons
1	95	95	1 068	1 068	1 163	1 163
2-3	523	1 242	9 296	23 677	9 819	24 919
4-5	771	3 520	12 644	55 962	13 415	59 482
6-7	1 001	6 439	6 945	44 433	7 946	50 872
8-9	1 498	12 649	3 455	28 828	4 953	41 477
10-11	1 032	10 862	1 068	11 134	2 100	21 996
12-13	605	7 647	748	9 189	1 353	16 836
14+	848	12 987	392	7 351	1 240	20 336
Total	6 373	55 441	35 616	181 642	41 989	237 083

Source: ESCWA estimates based on national and international sources.

Owing to the scarcity of other natural resources, the economy of Qatar relies almost completely on oil production, though since the 1970s a special effort has been made to diversify economic activities. Since 1980, when it represented more than 60 per cent of total gross domestic product (GDP) at current prices, the share of the oil sector in total output has decreased, and in 1985 it was estimated to represent only 42.9 per cent. Although GDP figures for the oil sector in 1986 are not yet available, the decline was expected to continue as crude oil production in Qatar decreased by more than 20 per cent between 1984 and 1985, and showed no signs of recovery until the

first half of 1987. Between 1975 and 1985 the share of the tertiary sector in GDP at current prices increased by more than 20 per cent. However, as is indicated in table 3, the share of this same sector in employment actually decreased, suggesting that there has been a contraction of the industrial sector, specifically the oil industry, rather than an expansion in Government and private services.

Table 3. Gross domestic product and employment by economic sector  
(At current prices - in percentages)

Sector	Gross domestic product			Employment		
	1975	1980	1985 <sup>a/</sup>	1975	1980	1985 <sup>a/</sup>
Primary	0.72	0.52	1.01	2.99	2.80	0.21
Secondary	78.83	76.17	56.90	29.02	28.10	48.52
Tertiary	20.45	23.31	42.09	67.99	69.10	51.27
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: ESCWA based on national and international sources.

<sup>a/</sup> Provisional.



## II. LAND AND SETTLEMENT PATTERN

Although the density of Qatar is reported as 29 inhabitants per square kilometre, the actual distribution of the population is very uneven, with more than 95 per cent of the people living on the eastern coast in the axis created by AL Khawr, Doha, Al Wakhra and Umm Said. Other concentrations occur in the northernmost part of the peninsula, in Madinat Ash Shamal and in Dukhan, on the west coast (see map 1).

Table 4. Settlement hierarchy, 1980

Settlement	Number of dwellings	F a c i l i t i e s			
		Health <sup>a/</sup>	Secondary school	Water mains system	Sewerage system
Doha <sup>b/</sup>	31 196	E	E	E	E
Al Wakrah <sup>c/</sup>	1 349	E	-	C	C
Umm Said	750	E	-	C	E
Al Khawr	631	E	E	E	C
Dukhan <sup>d/</sup>	350-450	E	-	-	-
Madinat Ash Shamal <sup>e/</sup>	341	E	E	-	-
Umm Slal Mohammad	150-250	E	E	-	-

Source: Shankland Cox Partnership, Qatar Planning Studies: Interim Structure Plan and Progress Report, (Qatar, Ministry of Municipal Affairs, 1980).

Key: E: existing; C: committed for construction.

- a/ Hospitals, health centres, clinics, dispensaries, etc.
- b/ Including surroundings.
- c/ Including Al Wukayr.
- d/ Including Bir Zikrit.
- e/ Including Abu Az Zuluf and Ar Ru'ays.

The Doha area has the largest concentration of inhabitants with an estimated 88 per cent of the total population of the country in 1985.<sup>1/</sup>

<sup>1/</sup> The difference between Doha and the other settlements is the reason for international sources only considering the population of Doha as urban, and all the other towns as rural. Officials of Qatar, however, consider that the urban/rural distinction is not valid for Qatar, as no settlement can be characterized as completely rural. In fact, several towns such as Al Wakrah, Umm Said, and Al Khawr can also be considered as urban. In this sense, approximately 97 per cent of the total population is urban, although the only town with more than 20,000 inhabitants is Doha.

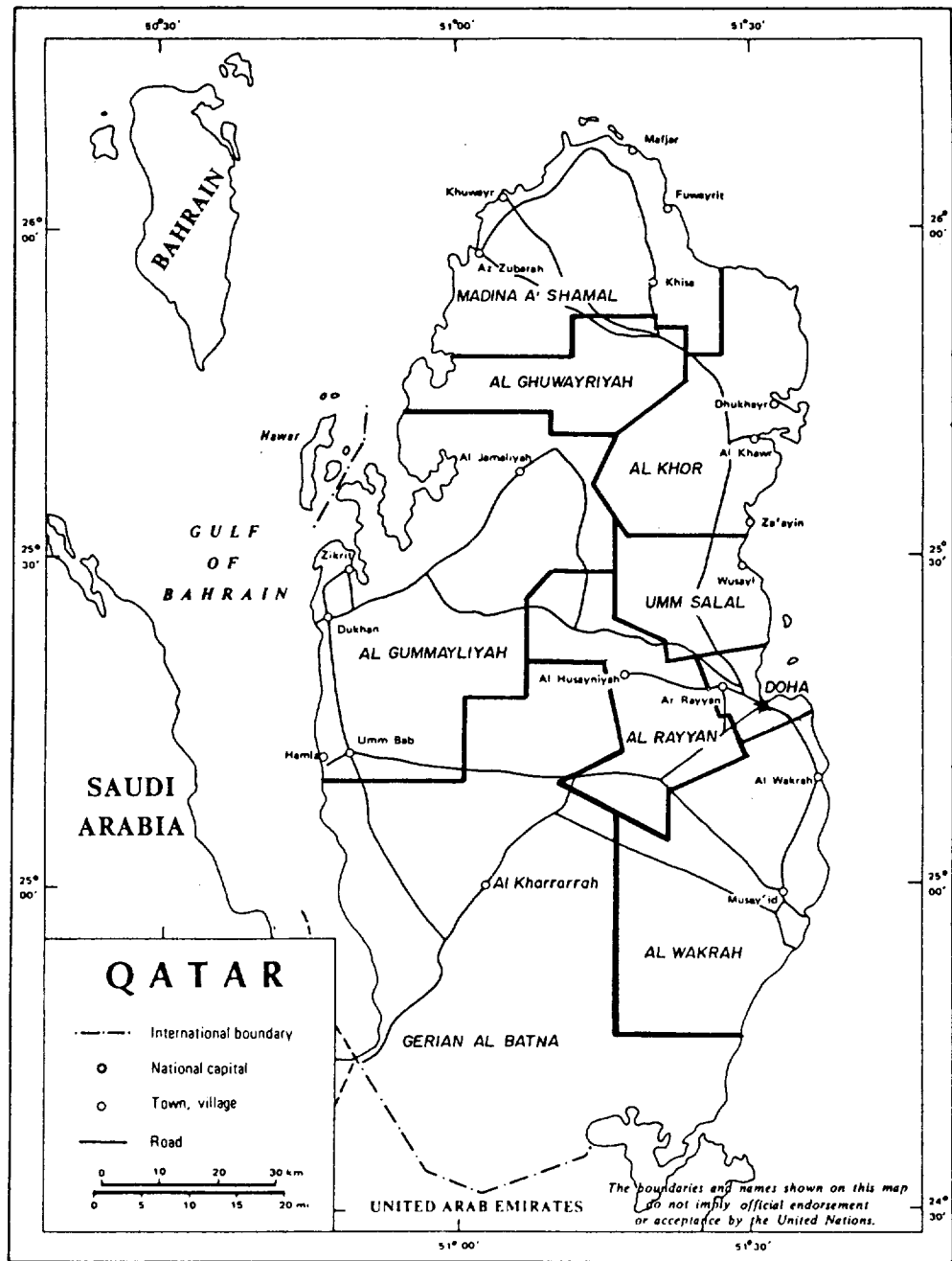
Consequently, the majority of the social services and facilities are concentrated in this area. Table 4 presents a hierarchy of settlements showing this centralization of facilities. Al Wakhra and Umm Said, the second and third largest towns according to the number of houses, did not have secondary schools in 1980, and their water mains systems had not then been constructed.

The urban population of Qatar is reported to have increased by an average annual rate of 7.3 per cent between 1980 and 1985, while the corresponding rate for total population was 6.8 per cent. The rates for the 1975-1980 period were 6.0 and 5.4 respectively. The high rates of increase in both urban and total population are due as much to natural increase as to international immigration. Like other Gulf countries, Qatar had to import much of the labour force needed for the economic expansion that followed the increase in oil prices during the 1970s. However, the slow-down in economic activities that has affected the country since 1980 caused a drastic reduction in the number of workers entering the country. In fact, between January 1983 and June 1984, there was a large net outflow of people, though by the beginning of 1985 this trend had reversed again, but not to the extent observed before 1980. Since January 1986, no exodus of workers has been reported.

Land use distribution in Qatar follows more or less the same pattern as the geographical distribution of the population. Industrial sites are concentrated mainly on the eastern coast. Umm Said, where the oil and gas processing industries are located, together with the flour mill and steel plant, is the main industrial area of the whole country. In Doha, about 300 hectares of land are reserved for light industry. The Salwa Road Industrial Estate, the largest single site area with around 180 hectares, is located in the southwest part of the city. The remaining sites are scattered around the southern and eastern sections. The industrial sites located on the western coast are the Dukhan oilfield and the Cement plant at Umm Bab. The expected development of the North West Dome Oilfield may result in industrial expansion in the northern part of the country.

Qatar has 16,000 hectares of arable land, which represent less than 1.5 per cent of the total area. Approximately 3,300 hectares are under cultivation. There is also a poultry farm and factory located north of Doha, a sheep farm in Abu Samra, and fishing ports in Al Wakhrah, Doha, Al Khawr and Al Ruwias. Nevertheless, the Government has made great efforts to develop the agricultural sector. Local supply now meets more than 60 per cent of the demand for vegetables, and almost 40 per cent of the consumption of dairy products. Several projects for the use of solar power, sea water and treated sewerage water in the cultivation of fruit and vegetables were started between 1983 and 1986.

Map: The Municipal boundaries in the State of Qatar.



MAP NO 3068 UNITED NATIONS  
OCTOBER 1979

Note: The Municipal boundaries are provided  
by the Ministry of Municipal Affairs.

### III. PHYSICAL DEVELOPMENT PLANNING

In view of the existing settlement pattern, most of the efforts of the Qatar Government in terms of physical development planning are focused in the Doha area. It is expected that Doha will continue to provide housing and employment for the vast majority of the population and, as a result, the concentration of services and facilities in this area will also continue.

The Doha area is structured around a ring-and-radial pattern composed of four ring roads and three main radial roads, i.e. Rayan Road, Salwa Road, and Umm Said Road. In 1972, a development plan for Qatar was prepared by Llewelyn Davies. This plan proposed a long term development for Doha towards the south, based on the existing structure of the city. However, in 1980, a new plan, prepared by the Shankland Cox Partnership was adopted by the Government as the main plan for the development of the Doha area (excluding the West Bay Development) up to the year 2000.

The national urban development strategy of Qatar is based on the assumption that, up to the year 2000, the country will experience a medium rate of economic growth. This implies a steady expansion of economic activities, with some increase in the major industries. In terms of population, it is expected that Qatar will follow the trend projected for Kuwait, that is, a normalization of the expatriate family structure and of the ratio of service employment to total population. Also, a modest degree of decentralization in the population should occur, with about 20 per cent of Qatar nationals and 15 per cent of non-Qatar nationals living away from Doha.

The basic assumption is that the population of Doha will reach about 375,000 inhabitants - about 66,000 households - in the year 2000. Based on these assumptions, the urban structure being implemented in the Doha area is designed to accommodate about 90 per cent of the increase in population, that is, an average of 1,700 new households per year.<sup>1/</sup> The implementation of this urban structure is based on two plans: the West Bay Development, prepared by William Pereira, and the Master Plan for the Doha Area, mentioned above.

The West Bay is an ambitious plan that is being developed at the north-west end of the Bay of Doha. The project started at the end of the 1970s and before construction began, 1,500 acres of land were reclaimed from the sea, creating a coastline from an area that had previously consisted of salt and mudflats. The project is structured around an "activity corridor" of mixed shops, offices, schools and houses. It is a mixed development with private houses, public housing projects, a small high rise area, a diplomatic

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<sup>1/</sup> Owing to the difference in average size between Qatar and non-Qatar households mentioned in the first part of this study, the average yearly increase is made up of 500 Qatar and 1,200 non-Qatar households.

area and a hierarchy of shopping areas. West Bay is also the site for the new Qatar University campus, a new General Post Office building, the National Theatre, the headquarters of the Gulf Organization for Industrial Consulting, the headquarters of the Qatar General Petroleum Corporation and the Doha Sheraton Hotel and conference centre. The project offers controlled growth for working, housing and recreational environments. By the end of 1986, about 70 per cent of total housing had been completed. The West Bay Development, once finished, is expected to accommodate 10,000 households.

The new housing developments outside the West Bay area have been divided into two density groups: (a) low density, with five dwellings per hectare, which is expected to accommodate all the new Qatar and 50 per cent of the new non-Qatar households; and (b) high density, with 20 dwellings per hectare for the remaining non-Qatar households. Thus, the estimated amount of land being allocated to housing is about 3,500 hectares: 3,100 hectares for low density development and 400 hectares for high density development.

The plan is being implemented through two different strategies. On the one hand, development is taking place within the already existing structure of the city (this is called the Base Strategy). On the other, there is the South East Radial Strategy that contemplates growth from the area of the base strategy towards the south, along the Umm Said Road. The main idea behind the Base Strategy is to phase the implementation of the development plan in such a way as to take advantage in the short term of any spare capacity in the social and services infrastructure. Thus, the Base Strategy will maximize the existing urban structure while providing the basis for the South East Radial Strategy. The Base Strategy has been formulated to cover, within and on the periphery of Doha, 2,700 hectares of land that were already committed to residential development and potential housing infill sites. Nevertheless, it is estimated that only about 70 per cent of this area will be developed by the year 2000; that is, of the 3,500 hectares needed for housing development, the Base Strategy is expected to provide about 1,900 hectares. It is necessary, therefore, that a second alternative be implemented in order to provide the other 1,600 hectares required for housing projects.<sup>1/</sup>

This second strategy has been designed as a corridor extending south-east of the city, along the Umm Said Road. The South East Radial Strategy meets the main requirements for the development of the Doha area. First, it provides the flexibility needed to accommodate variations in housing land needs because it has no obstacles to hinder expansion, and its limits can be extended or contracted as needed. Secondly, the boundaries to growth are clear cut. The eastern boundary is reinforced by the location of the airport and, south of the airport, by the need to keep housing outside the aircraft

<sup>1/</sup> The actual amount of land required for the second strategy will vary according to how much land is developed in the Base Strategy. Therefore, a high degree of flexibility has been integrated into the second strategy.

noise contour.<sup>1/</sup> The western boundary, south of the "D" Road, is also clear cut and reinforced by the proposed Abu Hamur industrial area and the existing sewage treatment plant. Thirdly, growth is concentrated in an area defined by the the plan itself and by the boundaries. This allows for better control of the expansion, while facilitating the maximization of the use of old and new services and social infrastructure. Fourthly, the strategy covers an area where there are both existing and new possibilities for routes into the central area of Doha. The area south of the "D" road is also comparatively free from physical constraints with regard to the design of a future road network that would serve the proposed development area.

The plan includes recommendations for the limited development of some existing areas outside the two strategies delineated above, as a means to control the growth taking place towards the north-west of the city between the Rayan Road and North Road. It will also be necessary to revise the plans for industrial areas, as there seems to be an over-concentration and over-allocation of land for this purpose. Other recommendations of the Development Plan for Doha include the maintenance of the skyline in the centre of Doha, especially in the area around the Amir's Palace, and the creation of a park on the waterfront, i.e. the Corniche Park, extending from the Amir's Jetty to Doha Port.

From the beginning of the 1980s, the Government of Qatar started to develop measures to deal with the deterioration of the environment. In 1981, the functions of the Industrial Development Technical Committee (IDTC) were expanded and it began to be involved in projects to solve environmental problems. IDTC is especially concerned with the problems of desertification. It established several projects dealing with greenhouses in the north of the country, where soil conditions for this type of project are somewhat better. IDTC has also been active in controlling the spread of rodents, a project that originated in the port areas and which was stimulated by inadequate garbage control. Also in 1981, the Environment Protection Committee was established as an independent organization, dealing mainly with the problems of industrial pollution. It also deals with air pollution caused by motor cars and monitors landfills. It has prepared a set of guidelines for environmental impact assessment and environmental standards. One of its major achievements is that new industries now need to seek clearance from the Committee before they are allowed to start operating.

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<sup>1/</sup> The noise contour runs approximately 200 metres west of the Umm Said Road and defines an area within which noise levels are too high.

#### IV. HOUSING

Housing has been a major concern of the Government of Qatar since 1964 when Law No. 1 decreed the provision of housing for citizens with a limited income. The Department of Public Housing of the Ministry of Labour and Social Affairs (MLSA) works in co-ordination with the Public Housing Division of the Ministry of Public Works (MPW) on housing design and construction, as well as on the allocation of families to the different types of houses. The first step is the identification of a need for a public housing scheme which is carried out by the MLSA. The MPW then prepares a pre-design that is submitted to the MLSA for approval, together with a request for electricity and water connections. Once all these requests have been approved, the MPW prepares the final design to be used by the MLSA in assigning families to the different types of houses. The last part of the process is controlled by the MPW, which allocates specific families to specific houses, checks the land for construction, prepares the site plan and, once the building permit has been granted by the municipality, contacts the contractor. Government financed houses can also be built individually through an agreement with the MPW, which nominates an engineer to control the construction. In this case the MLSA requires the applicant to provide a sponsor - usually his employer - as a condition of the contract.

Since 1985, the MPW has used four standard designs for public housing. The four types all contain one family room, one dining room, a kitchen, and a majlis.<sup>1/</sup> The number of bedrooms varies, as one type of house has three bedrooms, though the possibility of constructing an extra bedroom is included in the plan. The other houses all have four bedrooms. The covered area of the smallest house is 259 sq m, while that of the largest is 305 sq m. The standard plot of land used for public housing is 30 x 30 m, although on the outskirts of Doha or in the West Bay, larger plots can be used. There is also the "family plot", measuring 100 x 100 m, which is designed to contain three houses and a common majlis separated from and independent of the houses.

In order to be eligible for a Government financed house, the candidate must fulfill the following requirements: be a national of Qatar, be between 25 and 50 years of age, married, healthy, a junior employee,<sup>2/</sup> and must not own a private house. Once approved, the person is given a 25 years loan, without interest, and is required to pay back 60 per cent of the cost of the house on a monthly basis. At the end of 1986, the average cost per unit was

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<sup>1/</sup> Men's quarters, which also functions as a meeting room in order to avoid disturbing the family.

<sup>2/</sup> Most of the beneficiaries are civil servants. Senior staff are usually allocated larger houses and have certain privileges such as the installation of air conditioners.

around \$US 83,000 (or \$US 295/sq m of covered area). The land, together with the connection and use of water and electricity, are free. There is also a "furniture allowance" (\$US 5,500) which does not have to be paid back. Therefore, the real cost, e.g. construction plus land, service infrastructure and furniture allowance, is much higher, especially when taking into account that land prices in Doha are extremely high.<sup>1/</sup> Between 1982 and 1985, the Ministry of Labour and Social Affairs distributed an average of 440 houses per year. Approximately 60 per cent of them were located in Doha.

The Government also operates a housing scheme as part of its social welfare policy. Free houses are provided to citizens of Qatar who are over 60 years of age, widowed or handicapped, and who do not own a private house. These houses are also allocated to families, and never to a single person. The furniture allowance in this case is approximately \$US 2,700. Free houses are smaller, with two or three bedrooms, and a covered area of 135-160 sq m. Between 1982 and 1985, 483 free houses were distributed - 227 in Doha and 256 in the rest of the country.

Between 1981 and 1985, 6,691 dwelling units were added to Doha's housing stock, which represents a growth of about 20 per cent in four years. As can be seen from table 5, of the three types of housing unit, flats registered the largest increase, with 3,953 new flats being built during that period. Although no figures are available concerning the distribution of the non-Qatar population according to types of housing, it is safe to assume that the increase in the number of flats reflects, to a certain extent, not only the high price of land but also the growth of the non-Qatar portion of the population. In Qatar, only Qatar citizens are allowed to own housing property. Nevertheless, the Sample Survey of Household Expenditure carried out in Doha in 1983 indicates that about 54 per cent of non-Qatar households lived in dwellings provided by the employer, while the rest lived in dwellings rented independently. Thus, the increase in the number of flats is also a result of the efforts by Qatar employers - the State being the most important - to provide their employees with accommodation. It is also important to note that a large proportion of expatriates workers live in converted villas. This is possible because, while the exterior of villas is subject to regulation, the inside structure is not. Thus, an increase in the number of flats can be achieved without necessarily constructing new buildings.

As was mentioned before, the slow-down in economic activities affecting Qatar has greatly reduced immigration and in its turn, this has alleviated the pressure on housing needs. In 1981 the number of permits for residential buildings issued in Doha was four times higher than in 1985 (see table 5). Another indicator is the drop in both rents and land prices. In 1982, the monthly rent for flats and small villas was in the region of 4,000 to 10,000

<sup>1/</sup> For example, in 1984, prices in the free market were around \$US 250/sq m, but by the end of 1986 they had gone down to about \$US 80/sq m.



Qatar riyals (QR), while by the end of 1986, it was between 2,000 and 5,000 QR. Similarly, for the same period, there was a dramatic drop of about 70 per cent in land prices.

Another indication of the slow-down in the construction of residential units is the decrease in the number of dwellings completed per 1,000 inhabitants (see table 5). In 1983 this figure reached a peak with 8.1, while two years later, in 1985, it had decreased to 5.9. This downward tendency can be expected to continue in view of the low number of residential permits issued in 1985. The large number of dwellings completed in 1983 reflects the number of permits issued in 1981, assuming that, on average, about two years

Table 5. Housing units in Doha

	1981	1983	1985
Residential building permits <sup>a/</sup>	4 035	3 129	1 043
Dwellings completed per 1,000 inhabitants	5.0	8.1	5.9
<hr/>			
Housing stock <sup>b/</sup>			
Flats	10 378	12 490	14 331
Villas	10 162	11 597	13 088
Arabic houses	<u>12 197</u>	<u>12 070</u>	<u>12 009</u>
Total	32 737	36 157	39 428

Source: State of Qatar, Central Statistical Organization, Annual Statistical Abstract, 6th issue (Doha, 1986).

- a/ Number of dwelling units.  
b/ Excluding demolished units.

elapse between the issuance of the building permit and the completion of the dwelling.<sup>1/</sup> Consequently, the fact that in 1985 only 1,043 permits were issued (about 33 per cent of the 1983 figure) indicates that the number of dwellings expected to be completed by the end of 1987 must be much lower than the number of dwellings actually completed in 1985.

Since the beginning of the 1980s, both the average floor area and the average number of habitable rooms per dwelling have increased in the Doha area (see table 6). However, to a certain extent, this increase has been counterbalanced by the increase in population. Thus, while the average floor

<sup>1/</sup> The relationship between the number of permits and the number of dwellings completed is not based on a one-to-one relation. Thus, the number of permits only gives a rough approximation of the number of dwellings that are actually built.

area and the number of rooms per dwelling increased by 18 and 8 per cent respectively between 1981 and 1985, the average floor area per person increased by only 3 per cent, and the number of persons per room remained unchanged. Nevertheless, the indicator for crowding, that is, the number of persons per habitable room, is low in comparison with other countries of the ESCWA region, such as the United Arab Emirates (where it is more than two persons per room), or Bahrain (where the average is 1.86 persons per room).<sup>1/</sup>

The housing situation in Qatar, although still not perfect, is not particularly pressing at the moment. In fact, occupancy rates in Doha are quite low. The results of a census carried out in 1984 by the Doha Municipality indicate that the average occupancy rate for all types of dwellings was 83.6 per cent. The lowest rate recorded was that for flats, with

Table 6. Housing indicators in Doha

	1981	1985
Average floor area per dwelling (sq m) <sup>a/</sup>	162.0	192.0
Rooms per dwelling <sup>a/</sup>	4.5	4.9
Average floor area per person (sq m)	26.5	27.3
Persons per room	1.4	1.4

Source: ESCWA estimates based on national sources.

<sup>a/</sup> Public housing.

only 72.4 per cent, and the highest was that for popular houses - public housing - with 95.5 per cent. Obviously, future trends in the housing situation will depend on the kind of economic growth and planning that are undertaken by the country. However, within the limits set by these factors on any kind of projection, there seems to be some indication that, unless special emphasis is put upon residential construction and management, a severe shortage is likely to occur in the near future. It is estimated that between 1981 and 1985, the population of Doha increased from about 200,500 to about 277,000 inhabitants, which represents an increase of about 38 per cent. During the same period, the housing stock increased by 6,691 units i.e. by 20.4 per cent. In other words, the increase in population was almost double, that of the increase in dwelling units. As can be seen from the indicators in tables 5 and 6, the increase in dwellings has so far been sufficient. However, it should also be mentioned that the rate of growth of the housing stock has decreased over the last few years, and it is expected to keep on declining. At the same time, population projections indicate that between 1985 and 1990

<sup>1/</sup> It must be borne in mind that public housing tends to be smaller than private housing and, therefore, the actual crowding indicator is likely to be even smaller.

an increase of about 30 per cent in population can be expected. Thus, even if housing construction is maintained at the 1981-1985 level, the gap between population and housing supply will continue to widen. Moreover, if the level of construction continues to decline, as everything seems to indicate, a shortage of dwelling units will be unavoidable by the beginning of the 1990s. Part of the demand could be satisfied in the short-term by a rise in occupancy rates. Of the 39,428 units that constituted the total housing stock in Doha in 1985, only 33,317 were occupied. Thus, even if 5 per cent were left vacant to allow for mobility,<sup>1/</sup> there would still be about 4,000 units could be utilized immediately should the need arise. Flats represent the largest occupancy rate. Thus, by maximizing the utilization of this type of housing the housing supply could be increased without making any heavy investment in construction. Nevertheless, an improvement in the use of the existing housing stock will not be enough to satisfy the total demand, which in accordance with the estimates mentioned above, will be around 14,700 new dwellings between 1985 and 1990.<sup>2/</sup>

<sup>1/</sup> European standards for vacant housing units range between 2 per cent.

<sup>2/</sup> Assumptions for this estimate are based on the following: (a) an increase in population of about 83,000 inhabitants; (b) an average housing size of 5.65; and (c) each dwelling unit is inhabited by only one household.

## V. INFRASTRUCTURE

During the 1970s Qatar oil revenues enabled the Government to develop an extensive technical and social service infrastructure that now covers most of the country. Projects for water and sewerage, electricity, transport, education and health have been implemented, and by 1985 a large proportion of the population had access to a high proportion of these services. As has been mentioned before, services are concentrated in the Doha area. However, the fact that almost 90 per cent of the population is also concentrated in that area guarantees that the majority of the inhabitants is served by the existing technical and social infrastructure.

Water resources have always constituted a special problem in Qatar. Before 1964, all the municipal water supply came from pumped ground water, but in view of the small level of annual average rainfall,<sup>1/</sup> it was clear that another source of water had to be found. Thus, measures to conserve ground water were taken and, after that, the desalination of sea water has met most domestic and industrial water needs.<sup>2/</sup> The two major desalination plants are located in Ras Abu Fontas and Ras Abu Aboud. Other plants operate as separate, closed supply and distribution networks, like the one operated by the Qatar Fertilizer Company.

Virtually all the population of Qatar has access to safe drinking water (see table 7). Most of the distribution is through piped systems, and some areas are supplied by tankers. Water is heavily subsidized in Qatar, with a free service for Qatar citizens while non-Qatar citizens pay approximately 25 per cent of the production cost. This subsidy has resulted in overconsumption and a high level of daily water consumption per capita. It has been estimated that daily water consumption in 1985 reached about 540 litres per capita (see table 7).<sup>3/</sup> By 1986, it was clear that water could no longer be pumped 24 hours per day, and that there was little room for expansion in the existing system. Also, the fact that residential areas have expanded faster than productive capacity has, put a severe strain on the production system. Some measures have been taken to counterbalance not only wasteful consumption but also leakages in the distribution network. In May 1987, the Water Department of the Ministry of Electricity and Water, which is in charge of all activities related to the production and supply of drinking water, announced that it was

<sup>1/</sup> Fifty millimetres in southern Qatar, and 80 millimetres in the central region.

<sup>2/</sup> The Department of Water Resources and Agricultural Research of the Ministry of Industry and Agriculture is responsible for ground-water resources.

<sup>3/</sup> Vast amounts of potable water are used for irrigation, especially in gardens. The latter accounts for an estimated 35 per cent of domestic consumption.

reducing the pressure at which the water is pumped, and that some temporary cuts in service had to be expected. At the same time, in order to cut down water losses, projects for the repair and maintenance of the distribution network were included in the Government's capital expenditure for the fiscal year 1987/1988.

The sewerage system in Doha was started more than 25 years ago, and since then has been the subject of constant expansion by the Ministry of Public Works which is in charge of sanitation. Sewage plants also exist in Umm Said, Al Khawr, and Naijah. An estimated 85 per cent of the population was served by sewerage systems in 1985 (see table 7). However, although to date a large number of property connections have been provided, there are areas both in Doha and in the other towns where numerous houses are still served by septic tanks. This is particularly true of small settlements with less than 300 houses.

The desalination plants in Ras Abu Fontas and in Ras Abu Aboud also produce most of the electricity consumed in Qatar. However, the main grid which connects these two power plants does not cover the whole country, and there are other small isolated networks fed by diesel generator units in places such as Dukhan and Abu Samra. During the last few years electricity consumption in Qatar has expanded faster than production. Between 1981 and 1985, per capita electricity consumption increased by more than 10 per cent, while the increase in per capita production was less than 5 per cent (see table 7). Thus, by 1987 a shortage of electricity was expected, especially during the summer when consumption increases by more than 7 per cent because of the need for air-conditioning systems. Household consumption accounts for 33 per cent of the total, and losses in the distribution network are estimated to be around 5 per cent. Like water, electricity is free for Qatar citizens while non-Qatar citizens pay only a nominal charge. On average, the Government subsidizes around 80 per cent of production costs.

Qatar has a good road network of about 900 kilometres that links Doha with the rest of the country, including the border town of Salwa where it connects with the Saudi road network. The figures in table 7 indicate that the number of vehicles per 1,000 inhabitants decreased by about 20 per cent between 1981 and 1985. However, this decrease is due to the growth in population, which has outpaced the increase in the number of vehicles.

The two major ports in Qatar are Doha, which handles general cargo, and Umm Said which is used mainly for industrial cargoes including oil. There is also a ship repair yard owned by the Qatar National Navigation and Transport Company in Umm Said. Both ports were expanded during the late 1970s in order to cope with the expansion in imports that was generated by oil revenues. Plans for another port north of Doha have been shelved owing to the sharp decline in imports, which decreased by 38 per cent between 1982 and 1985, and which were expected to drop a further 12 per cent by the end of 1986.

The international airport in Doha is served by 17 airlines and, while it handles some cargo, it is mainly used for passenger traffic. It was used by approximately 1 million passengers in 1985. The national airline, Gulf Air, is jointly owned by the Governments of Bahrain, Abu Dhabi and Oman.

Communications in Qatar are handled by the Qatar Public Telecommunications Corporation. By 1985 the telephone network covered 80 per cent of the country, and international calls are made possible by satellite and submarine links. The Government has been particularly active in the expansion of the telecommunications network. By May 1985 there were 105,666 installed telephones,<sup>1/</sup> and an extension programme to be completed by 1987 has provided an average of 1,000 new lines per month. Eighty per cent of the lines are controlled by two digital exchanges while a third exchange, capable of handling 250,000 lines is being installed.

Table 7. Technical service indicators

	1981	1985
<u>Water and sewerage</u>		
Population served with safe water (%)	95.0	97.0
Population served with sewerage (%)	75.0	85.0 <sup>a/</sup>
Daily water production per capita (litre)	503.8	557.1
Daily water consumption per capita (litre)	480.0	540.0 <sup>a/</sup>
<u>Electricity</u>		
Number of consumers	54 553	80 189
Consumption per capita (kWh)	10 703	11 911
Production per capita (kWh)	12 197	12 538
<u>Transport</u>		
Private passenger cars per 1,000 inhabitants	304	248
Vehicles per 1,000 inhabitants <sup>b/</sup>	178	139

Source: ESCWA based on national and international sources.

<sup>a/</sup> Estimates.

<sup>b/</sup> All public and private vehicles, excluding private passenger cars.

<sup>1/</sup> Thirty-five per cent commercial.

The first school for boys in Qatar was established in 1952; the first school for girls followed in 1955. Schooling was extended to the secondary level in 1956 with the establishment of the Doha Technical School for boys. In 1986, the Ministry of Education, the largest Government employer with more than 9,000 employees, had more than 160 schools throughout the country under its supervision and another 30 schools are expected to be built by 1990. Education in Qatar is free, but not compulsory.

Qatar University was established in 1973, and in September 1984 it moved to a new campus located in the West Bay area. The enrolment ratio has increased rapidly in the last few years and was estimated to be 18.3 in 1985, which constitutes an increase of almost 5 per cent since 1981 (see table 8). The majority of university students are women - 63 per cent in 1986. This can be attributed to the fact that the majority of students studying abroad are men.

Table 8. Social services indicators

	1981	1985
<u>Education</u>		
Students per classroom <sup>a/b/</sup>	28.0	28.0
Students per teacher <sup>b/</sup>	12.7	11.1
University enrolment ratio <sup>c/</sup>	12.8	18.3 <sup>d/</sup>
<u>Health</u>		
Hospital beds per 1,000 inhabitants	3.4	2.8
Inhabitants per physician	1.4	1.8

Source: ESCWA based on national and international sources.

- a/ Government schools only.
- b/ Up to secondary school.
- c/ 20-24 age group.
- d/ 1984 figures.

Health has also been a major concern of the Government of Qatar. Life expectancy at birth in Qatar has risen to over 66 years during the last twenty years. In 1952, there was only one small hospital in Doha, but by the beginning of 1986 there were more than 200 health centres all over the country, including three major Government hospitals with a medical staff of over 2,300. In the last few years, however, economic recession has affected this sector, forcing some delays in expansion programmes such as the 310-bed Women's Hospital in Doha. Between 1981 and 1985 the number of hospital beds

per 1,000 inhabitants dropped from 3.4 to 2.8, while the number of inhabitants per physician increased from 1.4 to 1.8 (see table 8).

The structure of government capital expenditure has changed considerably since the beginning of the 1980s (see table 9). In the face of economic recession caused by the drop in oil revenues, the main aim of the 1987/1988 budget is to complete current projects and to carry out those that cannot be postponed. Among the latter, power and water plans, with 20 per cent of total expenditure, have a special relevance which reflects Government efforts to avoid the expected shortages explained above. Housing and public buildings have also increased their share, although it seems that a considerable portion of expenditure in this sector is earmarked for the completion of public buildings in the West Bay area. In general, the 1987/1988 budget shows a clear shift from the development of the industrial sector to the improvement of the social situation of the population, but it remains to be seen whether the Government can succeed fully in implementing these objectives in the light of its very cautious fiscal policy. During the 1984/1985 fiscal year, less than 70 per cent of the budget allocation was actually disbursed, and in 1985/1986 it was estimated that capital expenditure was 27 per cent below target. Although the drop in oil revenues and consultations regarding major projects to be implemented have delayed the publication of the 1986/1987 budget, actual capital expenditure has continued to decline, especially since all large projects are known to have been delayed or postponed.

Table 9. Major Government capital expenditure  
(Percentage)

	1980/1981 <sup>a/</sup>	1987/1988 <sup>b/</sup>
Housing and public buildings	12.2	19.4
Social services	4.9	4.1
Education	8.6	9.5
Health	3.1	3.5
Power, water and sewerage	9.1	20.3
Transport, communications and roads	10.1	9.4
Industry and agriculture	37.3	0.7
Other	14.7	33.1
Total	100.0	100.0

Source: ESCWA based on national and international sources.

<sup>a/</sup> Actual.

<sup>b/</sup> Allocated.



VI. CONSTRUCTION AND BUILDING MATERIALS

Like other Gulf countries, Qatar invested heavily in construction in the second half of the 1970s and beginning of the 1980s. Between 1974 and 1977 construction activities concentrated on the housing needs created by the influx of expatriate workers. After two years of restrained expansion, the focus of the construction industry shifted in 1979 towards the extension of the physical and social infrastructure, the building of Government offices, and the development of the Doha area. Thus, most major infrastructural projects had been completed by 1983. Since then, there has been a constant contraction of construction activities, as can be seen from table 10. Between 1982 and 1983, GDP in construction dropped by more than 400 million QR (\$US 110 million), which represents a decrease of 24 per cent in just one year. Since then, there has been a slight recovery but without reaching the levels of 1980-1982. The share of construction in the non-oil sector registered a more dramatic decrease, falling from 24.4 per cent in 1975 to 10.7 per cent in 1985. Although figures for 1986 and 1987 are not yet available, this declining tendency was expected to continue due to the reduction in oil revenues and to yet another shift in the focus of construction activities. With most of the physical and social infrastructure completed, only a few major projects like the North Field gas development, the Al-Wusail power and desalination plant, the Women's Hospital, and the headquarters of the Ministry of Education in the West Bay area remain to be implemented. Therefore, construction activities are now centred around small projects like schools, mosques, roads, etc. Another indication of the slow-down in the construction sector is the fall in the share of housing and construction in the distribution of credit facilities, down from 16.2 per cent in 1984 to 11.2 per cent in 1986. On the other hand, this slow-down in construction activities has helped to stabilize the influx of the expatriate labour force as the

Table 10. Gross domestic product in construction  
(At current prices)

	1975	1980	1981	1982	1983	1984	1985
GDP in construction (millions of QR)	766	1 556	1 632	1 829	1 395	1 411	1 428
As a percentage of total GDP	7.8	5.4	5.2	6.6	5.9	5.8	5.9
As a percentage of GDP in the non-oil sector	24.4	16.6	14.4	14.5	10.9	10.4	10.7

Source: Qatar Monetary Agency, Ninth Annual Report, 1984/1985, (Doha, 1985).

construction industry, being the largest employer of foreign workers in Qatar, now needs less manpower than it did up to 1982.<sup>1/</sup>

The lack of adequate natural resources has hindered the development of the building materials industry in Qatar. Sand, clay, gypsum and certain types of stones are exploited by the Government through plants established by the Ministry of Public Works. Most of the factories, therefore, have to rely on imported raw materials. The two major industries are the Qatar National Cement Company and the Qatar Steel Company. The cement factory is located in Umm Bab on the western coast of the country; it is a joint venture between the Government and the private sector. It opened in 1969 and its capacity, after several expansion programmes, is now 330,000 tonnes per year.<sup>2/</sup> Initially intended as an export-oriented project, the plant provided only about 35 per cent of the total cement consumption in 1981 (see table 11). However, by 1985 cement consumption had dropped by 55 per cent, therefore 73 per cent of local demand could be satisfied by the Umm Bab factory. In fact, during the first half of 1985, only specialized cements were imported.

The largest steel factory located in Umm Said, south of Doha, produces mainly steel reinforcing bars. The Qatar Steel Company complex is owned by the Government and two Japanese companies, and since its opening in 1978 it has been producing at well above its designed capacity of 330,000 tonnes per year. Most of the production is for export, especially since local consumption has decreased drastically over the last few years (see table 11).

Table 11. Major building materials industries

	<u>Cement<sup>a/</sup></u>		<u>Iron and steel<sup>b/</sup></u>	
	1981	1985	1981	1985
Number of establishments	1	1	2	2
Number of employees	503	505	1,120	1,223
Production per capita (kg)	769	724	1,853	1,600
Consumption per capita (kg)	2,178	995	148	68

Source: ESCWA based on national and international sources.

a/ Portland cement.

b/ Concrete reinforcing steel bars.

<sup>1/</sup> It has been estimated that more than 95 per cent of the construction employees working in the private sector are non-Qatar nationals.

<sup>2/</sup> An ambitious plan to expand capacity to almost one million tonnes per year was shelved in 1985, mainly because of the slow-down in demand for cement.

Almost all the raw building materials and a large percentage of the manufactured building materials used in Qatar are imported. The light industries located in the Salwa Industrial Estate south-west of Doha are capable of producing a variety of materials, but demand far outstrips production. Also, builders and contractors often prefer to use imported materials. In spite of the recession which has affected the construction industry in Qatar, more than QR 500 million (\$US 137 million) were spent in 1985 on importing raw and manufactured building materials such as wooden elements, marble, building stones, clay and clay products, iron ore, specialized cements, bricks and blocks and sanitary and air-conditioning equipment.

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