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THE FUNCTIONAL REGION OF BASRAH CITY

by

Abdul Hussain J. Al-Siraih

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ABSTRACT

The aim of this thesis is to study some significant aspects of Basrah Region, which is delimited by the current administrative limits of Basrah Province (Muhafadha). It is the south eastern region of Iraq, located at the northern head of the Arab Gulf. Basrah Region is Iraq's only coastal area, and, thus, all national ports and oil terminals are found here. The Region also contains more than 60% of the total reserves of oil and natural gas in the whole country which is one of the most important countries in this field. Because of Basrah Region's location and its rich resources of oil and gas, it has been given priority for the establishment of modern industries, including several large publicly owned factories, such as oil refining, chemicals and petrochemicals, iron and steel and paper production and processing. Consequently, because of the available employment opportunities in Basrah Region, it has been the second most important in-migration region in Iraq, and Basrah City, the regional capital, has become the second largest city in the country. This city is the key central city in the Region, playing a crucial regional role. It imposes its influence over various socio-economic relations covering a large surrounding area, which in some cases extend beyond the administrative region of Basrah.

Basrah Region has witnessed great socio-economic changes over the past thirty years. These can be attributed above all to the oil revenues in Iraq which have increased greatly since the early 1950's. However, the most significant changes have taken place in Basrah Region since the early 1970's because of the great increase in oil revenues during that decade. These changes are examined in this study, particularly those which have taken place in significant sectors such as industry, agriculture, transport, social services, and the demographic and settlement patterns. In addition, because of the great importance of Basrah City in the Region, its urban characteristics and regional relationships are also considered in this study.

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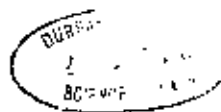
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INTRODUCTION

Basrah Region has been, in terms of its contribution to the nation's GDP, the most important region in Iraq in recent years. Before the early 1950's, when agriculture was the main source of national income, it was an important agricultural region in the country and included the most important date production area. Also, because Basrah contains Iraq's only coastal area (on the Arab Gulf), all Iraqi ports and oil terminals are found in this Region. This fact has maintained Basrah Region's great importance in terms of foreign trade, in which it serves the whole of Iraq, as it has done since antiquity. Although oil production in Iraq started in 1927, oil revenues have been the essential source of national income only since the early 1950's as the demand for oil started to increase. In 1951 oil production began in Basrah Region, which became Iraq's second largest oil producing region after Kirkuk Region. However, since the early 1970's Basrah Region has been the most important in the country in terms of oil production and exports. Moreover, it is the richest region in Iraq in reserves of crude oil and natural gas.

Since the early 1970's in both Iraq and Basrah Region the industrial public sector has greatly increased. The most important public industrial area has been Basrah Region where several large modern factories of basic industries, such as iron and steel, petrochemicals, fertilizers, and paper industries, have been established. This is due to, firstly, the location of the Region on the Arab Gulf and secondly, the

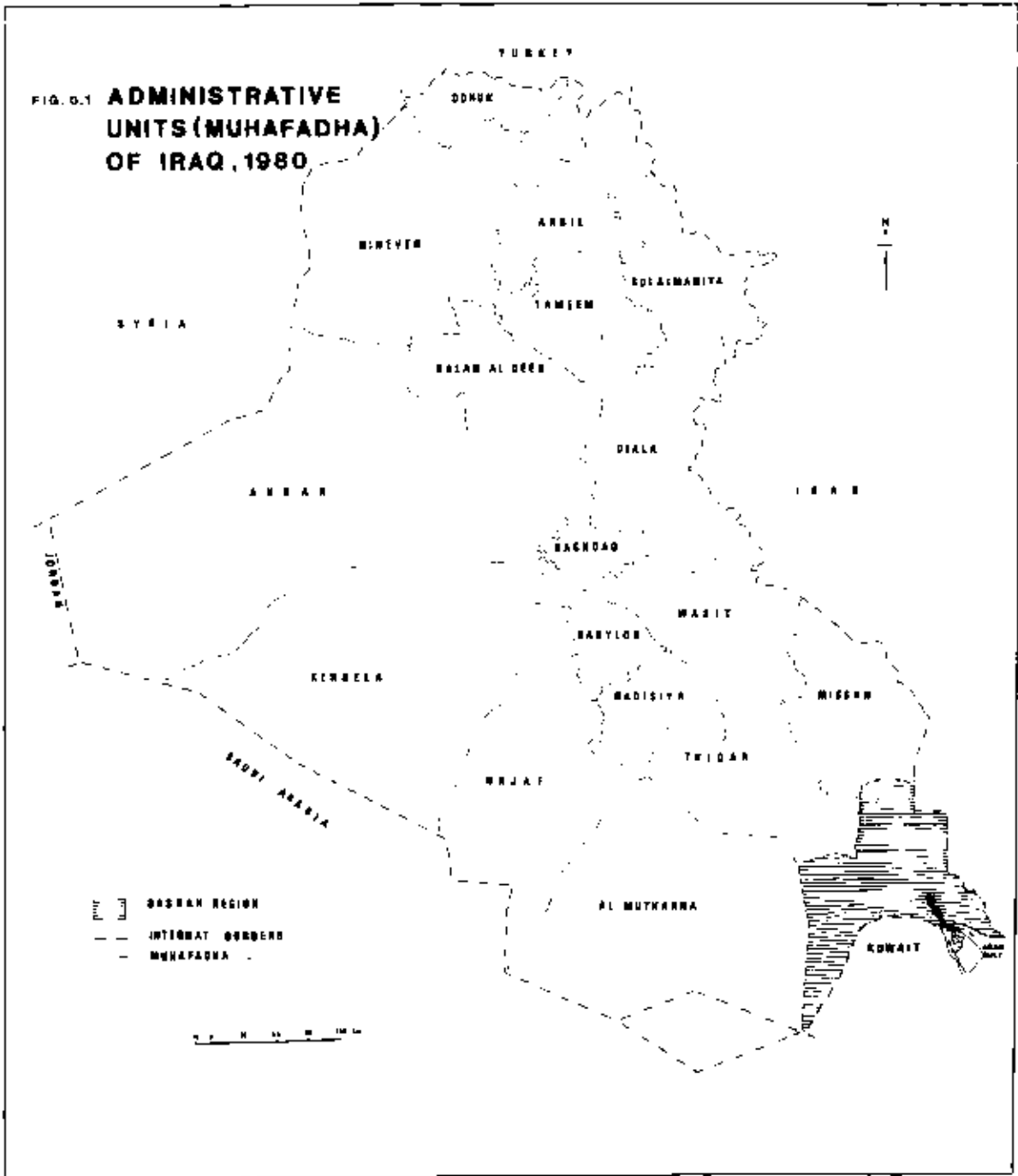


raw material and energy resources which are available in the Region. Consequently, because of the upsurge of available employment opportunities in Basrah Region, it has been the second most important in-migration region in Iraq, after Baghdad Region; and Basrah City has maintained its commercial status and become the second largest city in the country. In fact, remarkable developments in all sectors of the community in Basrah Region have taken place over the last thirty years, particularly since the early 1970's, and most of these will be considered in this study.

In addition to its important national role, Basrah, as one of the country's 18 provincial capitals, is the administrative headquarters of its own Region. The region (Muhafadha) is the largest unit in the pyramidal administrative structure of Iraq (Fig. 0.1) and, in Basrah's case, the Region is sub-divided into seven sub-divisions (Qadhas) (Fig.0.2) which, in turn, are further divided into 17 smaller units (Nahias). To what extent this Region is, or has become, synonymous with Basrah's regional influence is one of the aspects of this study.

Basrah Region occupies the south-eastern extreme of Iraq, at the head of the Arab Gulf, and extends between latitudes 29°5' and 31°20' N and between longitudes 46°40' and 48°30' E. The Region is bounded by Iran to the east, Kuwait and Saudi Arabia to the south, Missan Region to the north and by Thiqr and Al-Muthanna regions to the west. The south-eastern boundary is formed by the 90 km coastline along the head of the Arab Gulf. The Region has an area of 18,022 sq km., and had a total population of 1,008,626

FIG. 0.1 ADMINISTRATIVE UNITS (MUHAFADHA) OF IRAQ, 1980



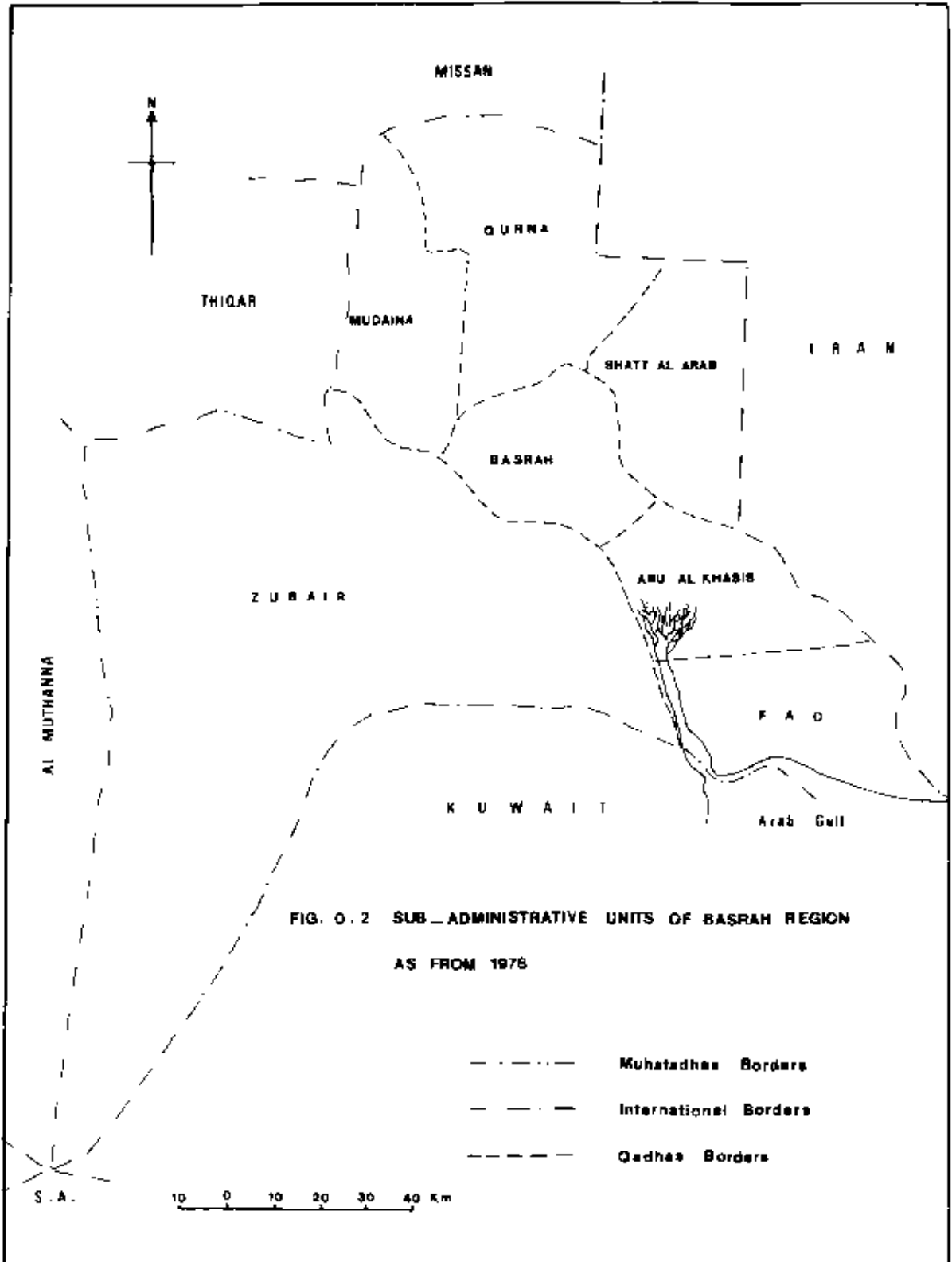


FIG. O. 2 SUB-ADMINISTRATIVE UNITS OF BASRAH REGION
AS FROM 1978

- Muhatadhas Borders
- International Borders
- - - - - Qadhas Borders

according to the last census carried out in Iraq in 1977.

Basrah City is a key city not only in Basrah Region, but also in Iraq as a whole, as it is the country's second largest city and its main port. In addition, it is the central city for Basrah Region, the whole of which falls within the sphere of influence of this city, not only because of its administrative services, but also for the different economic activities and services offered by the City. At present, nearly all spheres of influences of these activities and services coincide with or fall within the administrative region of Basrah, which therefore emerges as synonymous with the functional region of Basrah City.

This study aims to analyse some significant aspects of Basrah Region, including population and settlement, economic sectors, transport, and the social services. The emphasis will be on the evolution of these aspects up to their present situation, in the process of identifying problems and, hopefully, their causes, likely and actual consequences and solutions. Because the peculiar physical characteristics of the Region greatly affect the aspects mentioned, these will be considered in this study. Likewise the very great importance of Basrah City within the Region demands that, as a city, it receives appropriate attention. Chapter 8 looks at the City in its regional context, but the aim of the thesis means that a detailed study of the city itself is not justified. In addition to considering the development of the city's land-uses and internal relations, emphasis will also be placed on its present regional relationships.

Basrah Region has never been the subject of such a work; the present study therefore can be considered as the first comprehensive geographical study of this region. Few previous geographical studies have been concerned with Basrah Region, and those that have, have dealt only with one aspect or one particular sub-administrative unit of the Region. Two of these studies were concerned with Basrah City itself, one of them with its land-uses, the other only with its commercial function. The other studies were three survey and planning reports, two of them concerned with Basrah City in 1957 and 1973, and the third with Basrah Region in 1975. The latter was a rapid and inaccurate study based entirely on official data, and lacking field survey. A detailed critical study has been made of this report by the author.* All the above studies are mentioned in the reference lists of the present study. In addition, limited and scattered data on the study area are found in references which are regarded as general works, from which suitable data for this study have been abstracted wherever possible. The statistical data concerning Basrah Region in the past which are important for examining the development of those features considered, are very scarce or completely unavailable. Detailed Iraqi national statistical information covering material relevant to this study only begins to be available from the early 1950's. But, unfortunately, most of this data published by the Iraqi Government is concerned with Iraq as a whole, which makes it difficult to obtain specific

* Al-Siraih, A.J., Notes About The Planning of Basrah Region, Bulletin of University Horizons, University of Sulaymania, Vol.2 and 3, 1977, and Vol. 4, 1978.

data concerned with the sub-regions of Iraq, such as the study area. The annual abstracts of statistics are comparatively one of the most useful official publications for this study.

Here, it should be said that the official unpublished data, whether as reports printed or data available in records, are found in specific government offices. Unfortunately, although such data are significant for this study, all of these have been kept as top secret for three years. So, it has been impossible to obtain data from these offices during this period. Nevertheless, fortunately, in 1979 the author obtained significant data concerned with population of the study area and Iraq as a whole, collected in the last population census of Iraq in 1977. These data are significant particularly for the chapters concerned with population and settlement, but also for the study as a whole. Despite these problems, during a visit to the study area in the second half of 1980 some significant data was obtained but, inevitably, the statistical content of this thesis has been harmed because of these factors. For these reasons, and because the conditions in the study area in particular and Iraq as a whole have become abnormal since the Iraqi-Iranian war started in September 1980, the period which is considered by this study is only up to that year.

With the limitations of data available, field work became an essential source of data for this study. The author was born and bred in Basrah Region, and worked as a lecturer at the Geography Department in Basrah University for four years

until late September 1979. During this time he supervised several fieldwork teams which carried out many field trips throughout Basrah Region. He also carried out some studies of the Region. All these facts made the author familiar with the conditions of the study area. In addition, on the last work visit to the study area during the summer of 1980, as already mentioned, most of the time was spent in field work throughout the area. Field work involved the collection of data relevant to the different aspects considered by this study. Interviews were arranged with many people, living in both urban and rural areas in the study area. Some of the interviewees were working in government offices, economic establishments in both private and public sectors, and labour unions. However, field work is affected by numerous difficulties in a region such as this study area, where there are large marshlands and desert areas. Other difficulties are concerned with the social attitudes of the people.

However, although the data obtained for this study from the different sources already mentioned are both significant and considerable, any gaps found in the present study can be mainly attributed to the lack of data. Given that much of this data is not sufficiently detailed nor, in some cases, believed to be sufficiently accurate, it has not been considered appropriate to apply sophisticated techniques of analysis to it. Nevertheless, it is hoped that this work may achieve its aims, to give something of a clear picture of the subject of the study, and to make a contribution towards a fuller understanding of the evolution and of the potential of Basrah Region, which has become one of such great importance in Iraq.

CHAPTER 1

THE PHYSICAL CHARACTERISTICS OF BASRAH REGION

There is a close relationship between physical environment and human features in Basrah Region. Thus, a study of this relationship is important, particularly in this Region, where the exceptional nature of the physical environment greatly affects many of the human features such as economic activities, transport, size and distribution of settlements, and health. Therefore, a review of the physical elements is essential for a full understanding of the Region. These elements, which will be dealt with in the present chapter, include geology, topography, climate, water, natural vegetation and soils.

GEOLOGY

The land that is now Iraq was formerly part of a large depression called the Tethys geosyncline, which was the former extension of the Arab Gulf. This geosyncline occupies a position between the relatively stable Arab shield in the west and the highly mobile Zagros belt in the east.

The geological history of this area begins in the Cambrian period with the existence of a land which was composed entirely of the pre-fossiliferous crystalline rocks of The Archean Era. The land included all Arabia, Mesopotamia, Persia, and Armenia, and extended far beyond their limits. This land lasted in most of the Arab - Persian region throughout Palaeozoic times; and the geological

history of that era is concerned with the fluctuating advance and retreat of the sea upon its borders.⁽¹⁾ The significance of these facts for the modern economic evolution of the area can be summed up in one word : oil.

The sediments in the sea of the Tethys geosyncline were deposited in the Triassic, Jurassic, Cretaceous and Tertiary periods. The Triassic and Jurassic rocks consist of shale, dark limestone, oolitic limestone and occasional gypsum beds. The Cretaceous rocks consist of many sediments, mostly limestone and dolomite. The Tertiary period is sub-divided into Eocene, Oligocene, Miocene and Pliocene. Here, too, the sediments are mainly various kinds of limestone, such as, Eocene, Oligocene and Miocene limestones, which occur over large parts of Iraq. The folding of these sediments, which were originally deposited horizontally, started in Upper Cretaceous times with a maximum intensity of movements in the Pliocene.⁽²⁾

As a result of these movements, which had built up the fold mountains in the west of Iran and north of Iraq, a subsidence has been taking place in the southern part of Iraq which is occupied by the lower Mesopotamian Plain at the present time.⁽³⁾ The elevation of the mountain belt as a whole continued into recent time and is in fact still active. Complementary with the rise of the mountain strip there was further depression of the subsidence zone, into which were carried the products of the erosion of the mountains.⁽⁴⁾

In the quaternary period, and because of the climatic conditions in the Middle East which is characterized by pluvial and interpluvial phases, the most important

phenomenon is water erosion. Much material has been eroded in the mountain and upland areas surrounding the Mesopotamian Plain area. This plain has been filled up by fine textured sediments which were and still are brought by the rivers. During the arid periods, wind erosion was an important factor. Dunes have been formed and layers of aeolian material have been deposited on top of older sediments.

The modelling of the land surface and the development of soils are intensively influenced by Quaternary geological processes, therefore the Quaternary geology is of primary importance for agriculture and engineering. ⁽⁵⁾

In the area about to be analysed the exposed rocks range in age from Lower Cretaceous to Recent (see Fig.1.1), ⁽⁶⁾ and the known drilled thickness of sediments underlying the area is of the order of more than 12,000 feet. ⁽⁷⁾

According to the surface geology, Basrah Region is divided into two main areas (Fig. 1.2) ⁽¹⁰⁾ :

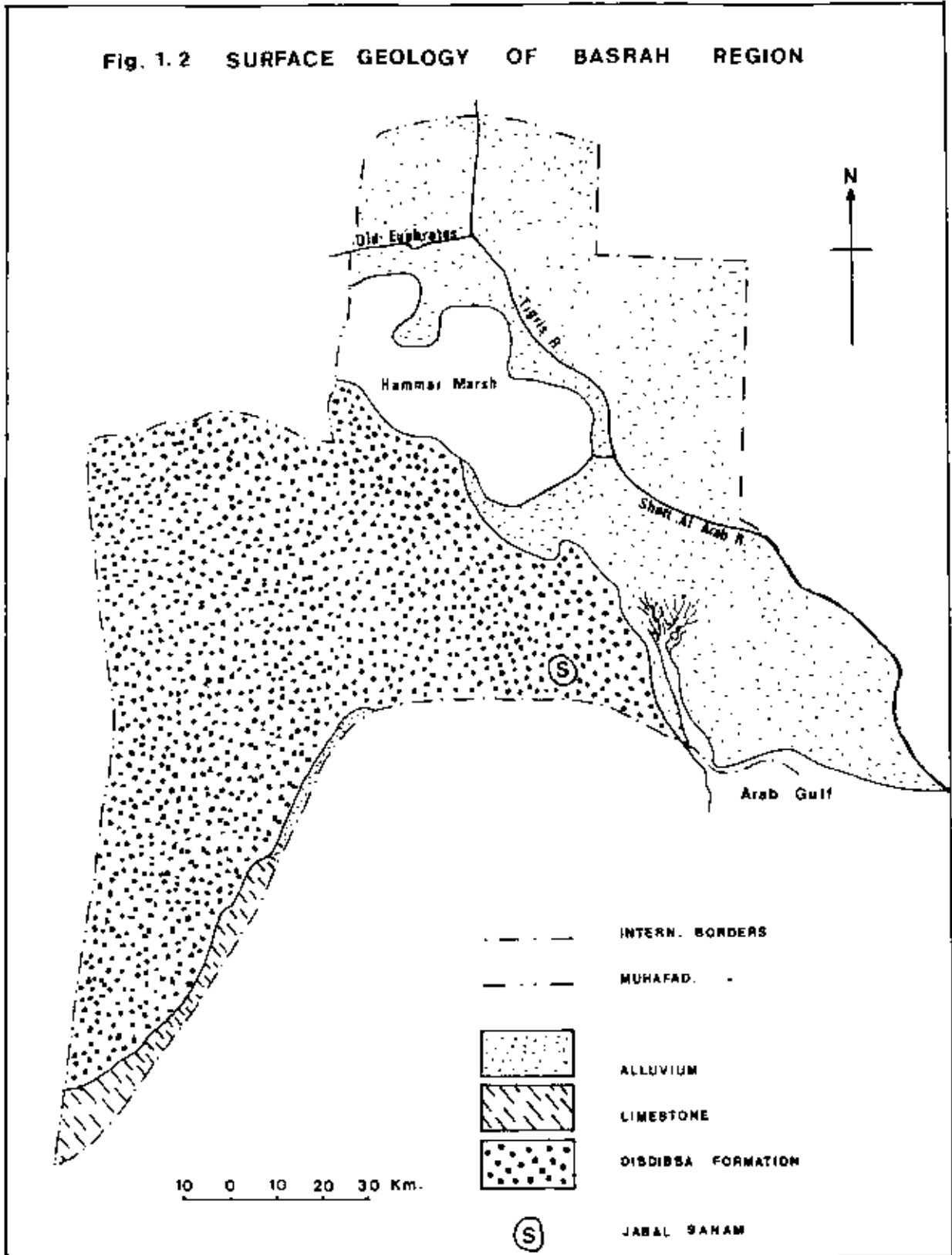
1. The alluvial plain. This is the southern part of the Lower Mesopotamian plain of Iraq. This plain occupies the northern half and south-eastern part of Basrah Region, covered by alluvial deposits of the Tigris-Euphrates, Karkha and Karun Rivers. These sediments overlie a formation which is 21 feet thick. The lower 14 feet of this formation consist of coarse and very coarse ill-graded sand, rarely cemented, and some silt; some of the sand is wind-blown. The upper part, 7 feet thick, consists of grey clay and thin washes of shells. ⁽¹¹⁾

FIG. 1-2 STRATIGRAPHIC NOMENCLATURE FOR BASRAH-KUWAIT AREA

AGE	GROUP	FORMATION		DESCRIPTION	
		BASRAH AREA	KUWAIT		
MIOCENE- PLEISTOCENE	KUWAIT	DIEDIBBA		Sands and gravels, subordinate marls	
		LOWER FARS		Anhydrite, gypsum marls and shallow water limestones	
		GHAR		Sands with subordinate gravels, occasional clays	
Eocene	HASA	DAMMAK		Recrystallized and dolomitized limestones of nummulitic facies. Capped by chert in Kuwait	
		RUS		Anhydrite, thick bedded with subsidiary limestones and marls	
		RAHILMA		Limestone mostly marly with subsidiary recrystallized and dolomitized limestones, thin anhydrites	
UPPER CRETACEOUS	AHUMA	TAYARAT		Limestone, recrystallized, usually dolomitic, with few thin interbedded black shales	
		QURNA	BASRAH	Globigennal marl, sometimes dolomitic	Dense cherty limestone with detritalism & sh. towards base
		FARTHA		Limestones, organic, detrital, glauconitic, with subsidiary dark shale	Dense white detrital limestone with some pseudo
		SA'DI		White chalky marly globigennal limestones	oolitic marly limestone and few thin black shales towards base
		TANUMA		Black shale with calcareous detritus	
		KHASIB		Fine grained marly limestone with interbedded shales	
		MIDDLE CRETACEOUS	WASIA	NISHRIF	
RUMAILA				Limestone, fine grained, marly and chalky in parts	
AHMADI				Shales, green, brown, grey with prominent limestone member	Shales, green, brown and grey
WARA				Sandstones and siltstones with interbedded grey shales	
MAUDDUD				Limestone, organic, detrital in part	
FARR UMR	BURGAN			Shale and sandstone, with occasional limestone beds in upper part	Clean sandstone with only minor shale breaks
LOWER CRETACEOUS	THAMMA			SHUAIBA	
		ZUBAIR		Interbedded sandstones and shales	
		RATAWI		Greenish black shales with limestone streaks	

Source After Owen, R.M.S. & Nassr, S.N. (1958).

Fig. 1.2 SURFACE GEOLOGY OF BASRAH REGION



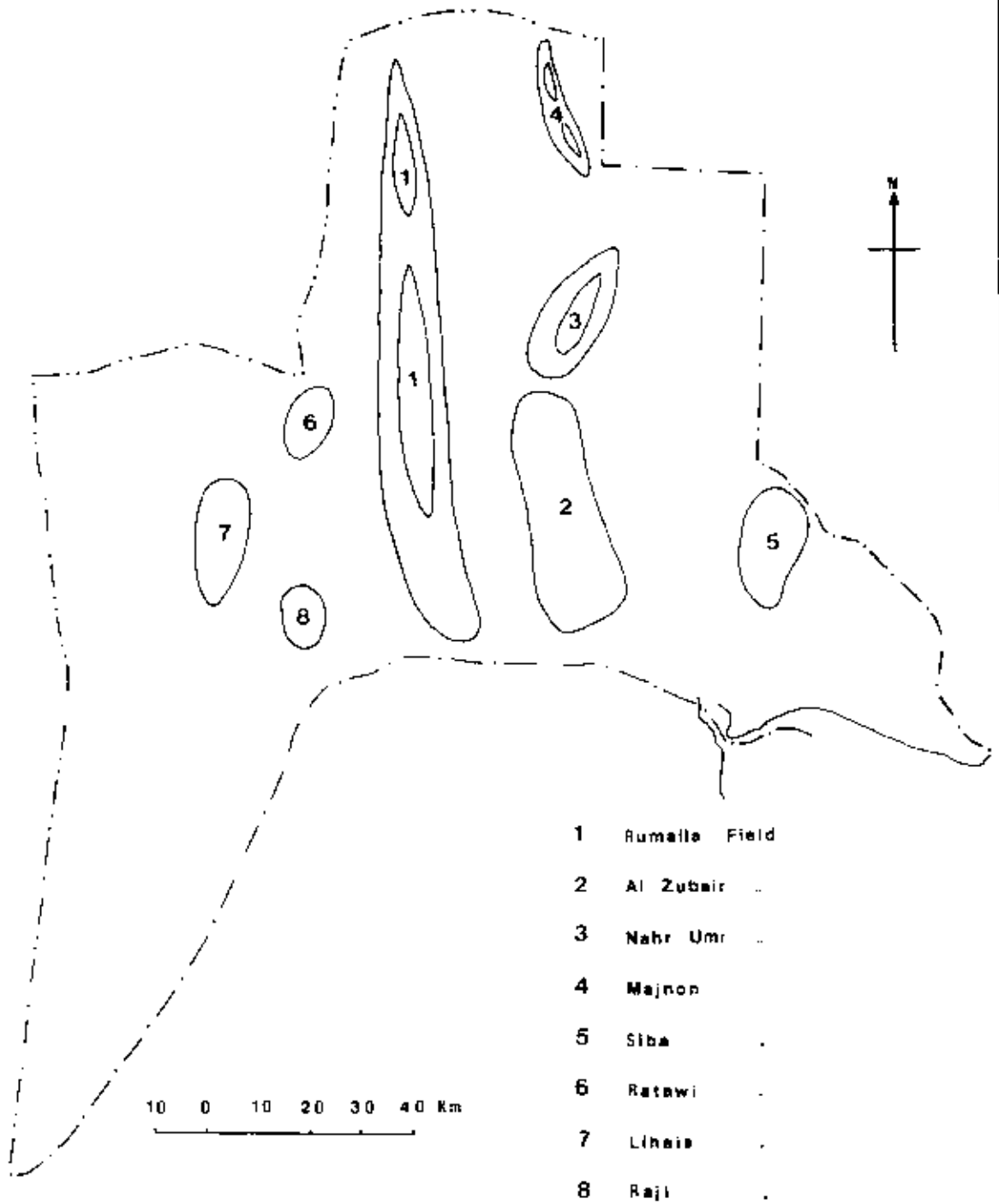
Source: After Al-Naqib, K.M. (1967).

2. The Dibdibba Region. This occupies the south western part of Basrah Region, and is considered by some geographers, the south eastern part of the western Plateau of Iraq. Its thickness is up to 1,160 feet, decreasing towards the west to some 500 feet, and it consists mainly of sand and gravel of igneous rocks, including pink granite, various liver-coloured and slate-grey intrusives, dolerites, etc., and white quartz pebbles. Not infrequently the rock is cemented to a hard grit. This formation probably ranges from Upper Miocene through Pliocene to Low Pleistocene. It occurs at the surface in this region (Fig.1.2). It should be represented as a continental formation.⁽¹²⁾ The Dibdibba formation contains ground water which is the sole water resource in this arid region, which will be discussed in detail later.

The economic importance of the geological structure in Basrah Region is consequently based upon the existence of many formations which contain commercial quantities of crude oil and natural gas. The most important of these formations is the Zubair formation, as the main reservoir of the crude oil in the southern part of Iraq, followed by the Mishrif formation, Nahr Umr formation, and finally, the Lower Fars formation which contains a heavy crude oil (Fig. 1.1).

Basrah Region includes nine exposed oil fields distributed in different parts of the region (at the present time), as shown in Figure 1.3. The Rumaila Field is the most important, having an area of about 4,000 sq.km., and consisting of two oil domes: the southern called Southern

Fig. 1. 3 OIL FIELDS IN BASRAH REGION .1980



Rumaila Field, and the northern called Northern Rumaila Field. In 1973 the crude oil reserves of this field were estimated to be of about 60,000 million tons, forming approximately 60 per cent of the reserves of Iraq. The second important field is the Zubair Field which has an area of about 1,000 sq. km.⁽⁸⁾ The other fields are: Ratawi, Raji, Lihais, Toba, Siba, Nahr Umr, and Majnon field. These last seven fields have the same oil characteristics as the first two main fields.

There are large quantities of natural gas in Basrah Region, particularly in Rumaila, Zubair, Arttawi, and Nahr Umr Field. In 1973 in these fields the reserves of natural gas were estimated to be of about 18,000 billion cubic feet, 64 per cent of the total reserves in Iraq.⁽⁹⁾ At the present time Basrah Region is a very important region in reserves and production of crude oil and natural gas in Iraq, which will be discussed in detail in Chapter Six.

Moreover, the Region has rich resources of sand, gravel, limestone, gypsum and cooking salt, all except the last of which are basic materials of the bouring construction industries.

TOPOGRAPHY

As a result of the geological structure of Iraq, flatness and low altitude are the major characteristics of the land within Basrah Region. But although this is generally true, the land surface of the region includes important local variations. According to these, it can be divided into two main distinct areas, the Alluvial Plain and the Al-Zubair Plateau.

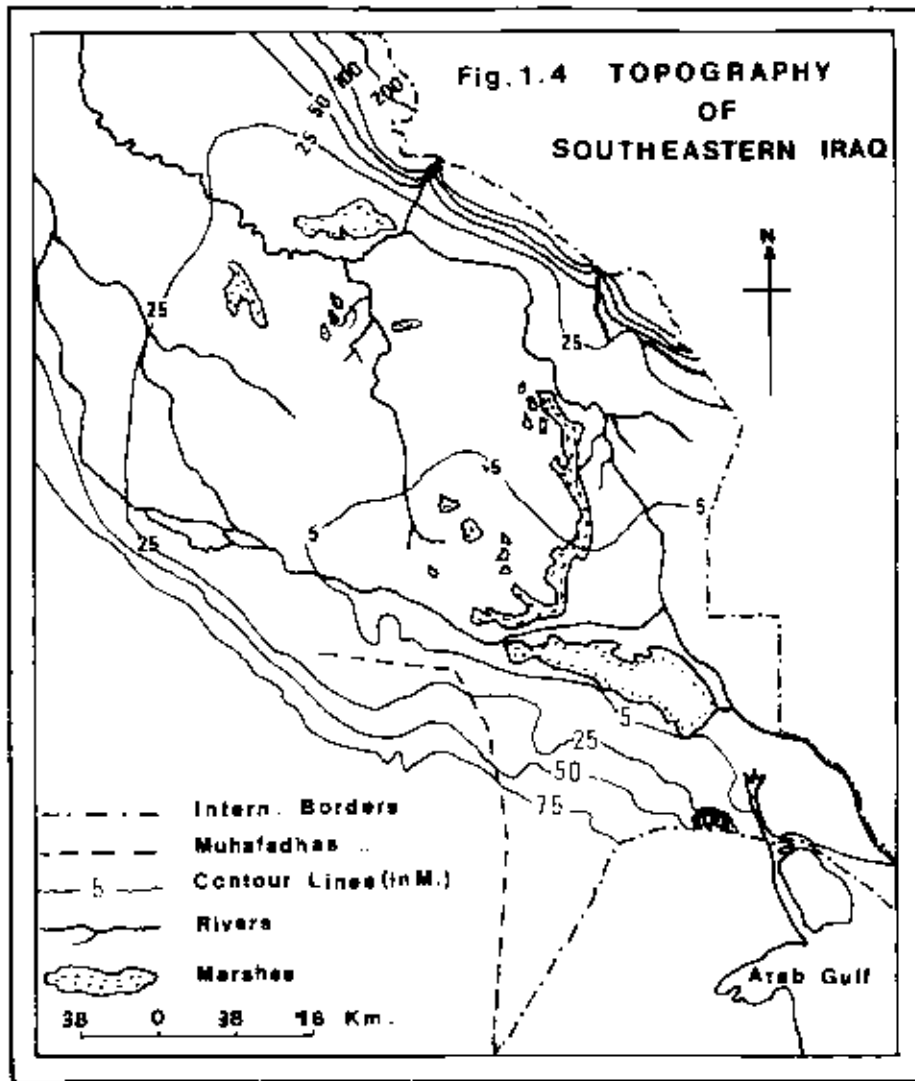
1. The Alluvial Plain

This plain, mentioned in the previous section, is the southern part of the Lower Mesopotamian Plain of Iraq. As shown in Figure 1.4, within Basrah Region the plain as a whole does not exceed 4 metres above sea level, while most parts are less than 2 metres above sea level. The height gently increases from sea level at the head of the Arab Gulf in the south, to 4 metres at the northern borders of the region. The average slope of about 1:47000, is not only very slight, but is only about $\frac{1}{3}$ of that of the whole Mesopotamian plain, which is 1:17500.⁽¹³⁾

Besides the general slope of the plain, there are side-slopes, where the land level decreases from the banks of the Tigris, Euphrates, and Shatt Al-Arab Rivers toward their basins. Based on this topographic feature the plain is divided into two distinct areas, as shown in Figure 1.5.

a. River levees

As a consequence of the sedimentation processes of the rivers mentioned above, low and narrow levees have formed on both their banks, contrasting with those of the northern part of the alluvial plain of Iraq which are high and wide. The reason is that the amount of sediments of the Tigris and Euphrates rivers are greatest in the northern parts, while they are very slight and fine in the southern parts because most of the sediments are deposited in the marshlands. Therefore the amount of the sediments carried to the Arab Gulf by the Shatt Al-Arab river is estimated to be about 10 per cent of the sediments total of the Tigris and Euphrates.⁽¹⁴⁾



Source: After Al-Butahi, A.R.M. (1972).

The elevation and width of these levees varies from one place to another. The width ranges from 1 km. in the northern part to about 5 km. in the middle around the old confluence of the Tigris and Euphrates and about 3 km. on both banks of the Shatt Al-Arab. The elevation also ranges from less than one metre to more than 2 metres above the level of the adjacent seasonal marsh areas. Moreover, the levees disappear at some places such as on both banks of the western part of the old Euphrates course and at the southern part of the Shatt Al-Arab river near the Gulf. Although the river levees are regarded as the high places of the plain within the region, most parts are covered by the water during flood times, and all is covered in high flood periods.

Within the river levees area there are many isolated summits located particularly on both banks of the Tigris between Qurna and the northern borders of the Region. These were used as military fortresses during the Ottoman Empire,⁽¹⁵⁾ and, at present, are used as the best sites for settlement by the inhabitants to protect them from the risk of floods. The largest one (Khiaber Jebal) is located west of the Tigris downstream of Qurna, and has an elevation of about 6 metres above sea level.

b. Marshlands

The marshes are the dominant phenomenon of the plain within Basrah Region, since except for the river levees, the whole of this plain consists of extensive marsh areas. Many theories have been advanced to explain the marshes of Iraq.⁽¹⁶⁾ According to Less and Falcon (1952), the Tigris, Euphrates,

and Karun rivers are not building forward a normal delta; they are discharging their load of sediment into a tectonic basin which is the successor to a geosyncline in which many thousands of feet of sediment have been accumulated in the past, over a period to be measured in hundreds of millions of years. The balance between subsidence and sedimentation in the recent past seems to have been finely poised: subsidence was episodic and in the intervals the depressions tended to fill up with sediment. But, in general, subsidence has been dominant. (17)

The marshlands are of two kinds : the perennial marshes which occupy the deeper parts, and the seasonal marshes in the shallow areas surrounding the former (see Fig.1.5). The depth of water ranges from less than one metre to more than 2 metres. The depth and total area of the marshes vary from one to another with the variation in discharge of the flood waters.

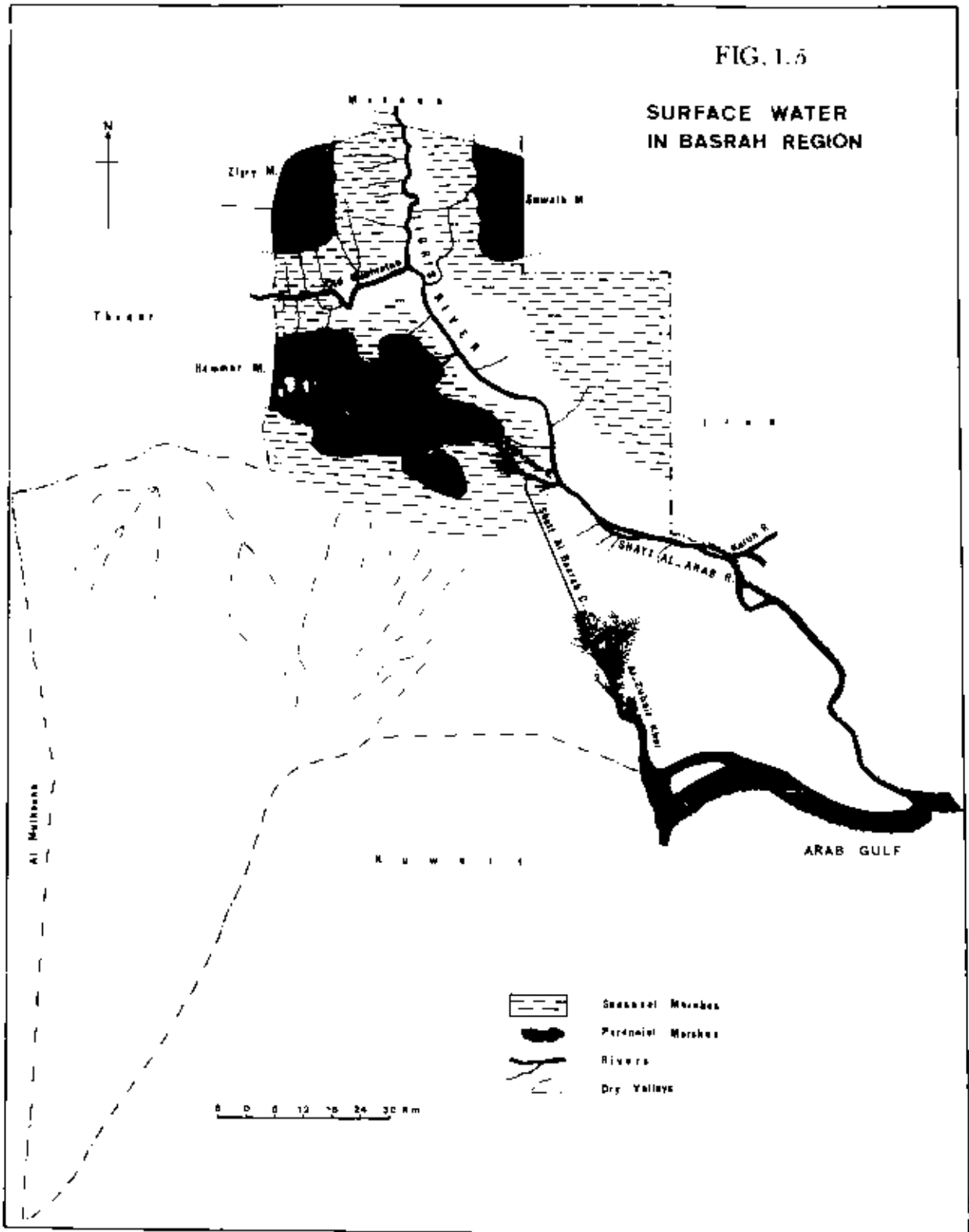
Many islands are to be found in the perennial marshes, particularly in the Al-Hammar marsh. Most of the islands in this marsh are parts of river levees of an ancient course of the Euphrates river. (18) The marshlands will be discussed in more detail later in this chapter.

2. The Al-Zubair Plateau

This area occupies the southern and south-western parts of Basrah Region, the remainder of its total area, and it is higher than the alluvial plain with an elevation ranging from 6 metres in the north and east up to 76 metres in the south-west. (19) (see Fig.1.4).

FIG. 1.5

SURFACE WATER
IN BASRAH REGION



Generally, the plateau is flat, having but a few slightly higher, isolated, elongated hills. The country is covered with gravel and sand. The gravels are of various igneous and quartz pebbles, and the coarse sands are in places cemented into hard grit. This formation is known as Al-Dibdibba. South-southwest of Al-Subair and very close to the Iraq-Kuwait border, the Jabal Sanam stands out as a solitary and isolated hill. It has an altitude of more than 500 feet above sea level in a low-lying region whose altitude elsewhere ranges between 50 and 150 feet. This prominent and impressive feature is a piercement salt dome (the only one in Iraq), the detailed geology of which is still obscure. (20)

Because the rainfall is generally slight, drainage lines have not been significantly incised, except for the long, deep and very straight dry valley known as Wadi Al-Batin, which runs north-eastward, (21) forming the boundary between Iraq and Kuwait. It has steeply sloping banks, and varies in width from 1.5 to 6 km. between crests on either side. The banks have been cut by numerous small dry tributaries (Shaib). (22) The other shaibs and wadi courses show a gradual swing in direction northeast to north toward Al-Hammam marsh, as evidenced in Shaib Ash Shich, Shaib Al-Ubtain (Butayn), and Shaib Al-Adhbi. Other courses end in a gentle closed depression forming a kind of internal drainage basin. (23)

CLIMATE

As in any other region, the climatic conditions of Basrah Region are determined by several factors including the latitudinal location, the relation to neighbouring water-bodies, topographic features and altitude, (all of which have already been mentioned), as well as by the pressure systems in the whole area surrounding Iraq and the prevailing winds (which will be mentioned later).

Unfortunately, Basrah Region has only one meteorological station which is found in Basrah City. Therefore, discussion of the climatic features in the whole Region must employ data from Basrah station and also from the nearest stations in the surrounding regions, including Hai, Nasiriya, Amara, and Kuwait station, according to what is available.

Temperature

Temperatures in Basrah Region are characterized by a large daily and annual range. The hottest month of the year in the Region, as in all Iraq, is July, whereas January is the coldest, as shown in Table 1.1.

The large daily and annual ranges of temperature in the Region are due to the fact that during the summer the completely cloudless skies, the long day and dry hot cT (continental tropical) air masses, in association with the latitude and altitude factors, intensify the high temperature. On the other hand, in winter the relatively short days, and the predominantly cold dry cP (continental polar) air bring low temperatures to the Region.

TABLE 1.1 AVERAGE MONTHLY AND ANNUAL TEMPERATURES (°C)
PERIOD : 1941 - 1970

Maximum Temperatures

Station	Months												Year
	J	F	M	A	M	J	J	A	S	O	N	D	
Basrah	18.6	21.0	25.3	30.8	36.1	38.8	40.5	41.3	39.7	35.0	26.7	20.0	31.2
Hai	17.5	20.0	24.0	29.8	36.9	41.5	43.5	43.8	40.8	35.0	26.2	19.2	31.5
Nasiriya	17.8	20.4	24.9	30.7	36.9	40.2	42.8	43.8	41.3	35.4	26.0	18.9	31.6

Minimum Temperatures

Basrah	7.0	8.7	12.6	18.0	23.7	26.9	27.7	26.3	22.6	18.3	13.2	8.0	17.8
Hai	5.5	6.9	10.7	15.6	21.0	24.4	26.4	25.9	22.5	17.4	11.8	7.0	16.3
Nasiriya	5.9	7.7	11.5	16.6	22.4	25.3	26.1	25.2	22.0	17.1	12.0	7.5	16.6

Mean Temperatures

Basrah	12.4	14.6	18.7	24.1	29.7	32.7	34.0	33.6	30.6	25.9	19.3	13.6	24.1
Hai	11.6	13.6	17.7	23.0	29.4	34.1	36.9	36.6	33.1	27.5	19.5	13.3	24.7
Nasiriya	11.4	13.9	18.2	23.6	29.8	32.9	34.3	34.6	31.6	26.1	18.8	12.8	24.0

Source : Iraqi Meteorological Organization, Baghdad.
 (Unpublished data).

By comparison, all Iraqi meteorological stations have fairly low values of oceanicity and hence high degrees of continentality. The least continental (i.e. most oceanic) station is Basrah; here maritime influences are more marked due to its close proximity to the Arab Gulf, as well as the swamps and marshy lands which are found in the south of Iraq, including Basrah Region.⁽²⁵⁾ Consequently, the average monthly July temperature decreases to the south and south-east, as shown in Table 1.1, while the average monthly January temperature decreases to the west and north-west. Nevertheless, the difference of average temperature is very slight throughout Basrah Region, where the difference between the three stations shown in the table does not exceed two degrees centigrade in January and three degrees in July.

The temperature conditions provide specific opportunities in Basrah Region for the cultivation of various crops in different seasons, as will be seen in Chapter Four.

Rainfall and Relative Humidity

Almost all the rainfall in Basrah Region occurs in winter and spring, brought by the depressions crossing the country from the Mediterranean. These depressions, a major rainfall source for Iraq, are more frequent in winter than in spring and autumn, and by summer no longer affect Iraq. As shown in Table 1.2, the rainfall season starts in October with a minimum monthly mean of 0.8 mm. at Basrah, reaches the maximum monthly mean of 29.3 mm. in December, and decreases to 7.8 mm. in May, while there is generally no rainfall from June to September. The mean annual rainfall

is about 140.0 mm., although it differs throughout Basrah Region. It decreases to the west and south, from 160.4 mm. at Amara to 140.0 mm. at Basrah, 111.6 mm. at Nasiriya, and 102.7 mm. at Kuwait. (26)

TABLE 1.2 MEAN MONTHLY RAINFALL (M.M), PERIOD: 1941-1970

Station	Months												Year
	J	F	M	A	M	J	J	A	S	O	N	D	
Basrah	24.2	14.3	20.3	20.9	7.8	0.0	0.0	0.0	0.0	0.8	22.5	29.3	140.0
Hai	24.7	20.6	19.2	16.6	6.8	0.0	0.0	0.0	0.0	3.3	19.4	23.2	133.8
Nasiriya	19.2	13.4	15.7	16.9	7.1	0.0	0.0	0.0	0.0	2.2	15.7	19.4	111.6
Amara(*)	29.1	26.4	25.6	19.8	7.0	0.0	0.0	0.0	0.0	3.9	22.0	26.6	160.4

(*) At Amara station the data has been obtained for 15 years.

Source : Iraqi Meteorological Organization, Baghdad,
(Unpublished data).

Therefore, the rainfall is too low to cultivate land without irrigation, which is thus essential to agriculture.

Relative humidity is important as far as human comfort and plant life are concerned. The highest relative humidities in Iraq occur in areas of highest rainfall, including the north; however, Basrah Region has low rainfall but high relative humidity. This is accounted for by its location, for it is dotted with waterbodies and is in close proximity to the Arab Gulf. The high temperature and high relative humidity which sometimes occur together in summer are extremely uncomfortable; but, fortunately, they do not persist throughout the summer. (27) The highest relative humidity in

the Region occurs during the rainy season (see Tables 1.2 and 1.3). The rainfall maximum from December to February is associated with a high relative humidity. Generally, in

TABLE 1.3 MEAN MONTHLY RELATIVE HUMIDITY, PERIOD: 1941-1970

Station	Months												Year
	J	F	M	A	M	J	J	A	S	O	N	D	
Basrah	78	70	64	58	53	49	49	48	50	56	69	78	60
Hai	72	62	56	49	38	27	26	26	28	37	57	72	46
Nasiriya	66	58	51	44	36	33	30	28	27	35	53	66	44

Source : Iraqi Meteorological Organization, Baghdad.
(Unpublished data).

Basrah Region, the annual mean of relative humidity decreases to the north-west, west and south-west, from 60% at Basrah, to 46% at Hai, 44% at Nasiriya, and 43.4% at Kuwait.

Winds

The prevailing winds of Basrah Region are the locally named Al-Shamal winds. They are northwesterly, (see Table 1.4), because of the pressure systems in the areas surrounding the Region and the trend of the mountain ranges in northern Iraq and western Iran. The frequency and characteristics of these prevailing winds differ from one season to another.

TABLE 1.4 MEAN NUMBER OF FREQUENCY OF WINDS DIRECTIONS (%)
PERIOD : 1941-1970

Station	N	NE	E	SE	S	SW	W	NW	Calm
Basrah	10.5	3.3	5.5	6.3	5.4	2.7	20.5	34.1	11.7
Hai	5.9	2.9	11.5	4.6	2.9	1.9	39.3	21.0	10.0
Nasiriya	15.2	2.9	8.6	8.3	5.1	3.1	17.0	36.0	3.8

Source : Iraqi Meteorological Organization, Baghdad,
(Unpublished data).

In winter it is cold and dry, associated with clear skies and rainless weather, but this is sometimes interrupted by Mediterranean depressions passing through the country, particularly in December, January, and February. The warm and wet winds in front of the depression are south-easterly, coming from the Arab Gulf; named Al-Sharqi, they break up the normal winter circulation,⁽²⁸⁾ and bring warm weather, cloudy sky and sometimes rainy periods. These south easterly winds are associated with dust-storms when the land surface in the area is dry. In summer the prevailing winds are north westerly, but becoming strong, dusty and more dry than in winter particularly in daytime, which always gives relief and welcome weather during the summer nights. In Iraq, including Basrah Region, dust-storms are common from April to October due to the complete absence of rainfall, lack of vegetative cover, and the strong prevailing winds (Al-Shamal). They bring high temperatures, strong winds and a great amount of dust,⁽²⁹⁾ causing much damage to vegetables, dates and other fruits, as well as affecting people's health, as will be seen later.

WATER RESOURCES

Although the climate of Basrah Region is so arid, it has plenty of water resources, including surface and ground water which can be and are used for agricultural, industrial, transport, and domestic purposes.

1. Surface Water

This kind of water resource is confined to the alluvial plain area of the Region, and mainly controlled by the Tigris and Euphrates, the great rivers of Iraq. It comprises the river systems and marsh areas as shown in Figure 1.5.

A. The Rivers System

In Basrah Region there are three main rivers:

- 1) The River Tigris . This enters the Region, crossing the northern administrative boundaries with Amara province, flows southeast to join the old course of the Euphrates River at Qurna City, and continues in this direction till its confluence with the Euphrates River (Garmat Ali) at the northern extreme of Basrah City. The length of the Tigris is 95 km. in the Region, 30 km. from the boundary to Qurna, and 65 km. from Qurna to Basrah. The width of the river ranges from 60 metres upstream of the borders to 180 metres at Qurna, and 250 metres upstream of Basrah. Numerous canals and creeks bifurcate from both banks of the Tigris.
- 2) The River Euphrates : There are two courses of this river; the old runs north of Al-Hammar marsh towards the east from Suq Al-Shyukh City in Thi-Qar province to Qurna, where it joins with the Tigris, at their old confluence. It is

40 km. within Basrah Region, and the width ranges from 50 metres upstream of the western borders of the Region to more than 200 metres at Qurna. Numerous canals and creeks join it on both banks. The new, and greater course, enters the Al-Hammar marsh in Thiqr province. It has submerged the course and the lands surrounding it, converting the marsh into a wide expanse of lake, and has broken a new outlet course, locally named the Garmat Ali river, from this lake to join the Tigris at Basrah City.

3) The River Shatt Al-Arab : This is the course of the combined waters of the Tigris and Euphrates rivers, and runs from Basrah downwards to the Arab Gulf, covering 110 km. in Basrah Region. This river is joined by only one tributary, the Karun, on its left bank. Numerous creeks and irrigation canals branch from both banks of the Shatt Al-Arab. The width of this river ranges from 400 metres at Basrah City to 1,500 metres at its mouth. The depth of the river water about 9-11 metres, is therefore navigable by some sea-going vessels. (30)

B. The Marsh Areas

The marshes and swamps are mainly found in the three southern provinces, Basrah, Missan, and Thiqr Regions. They form a roughly triangular area between Basrah City, Amara City and Nasiriya City. They constitute about 80 per cent of the total marsh areas in Iraq. It is impossible to estimate the exact marsh areas in Iraq, because it has varied in the past and differs with the seasons. According to Al-Kaiatt, the marshes area ranges from 3,000 - 4,000 sq.km.

during the low water season of the Tigris and Euphrates to 15,000 sq.km. in their flood season.⁽³¹⁾

Marshes in southern Iraq are of two kinds : perennial marshes which are depression areas covered with water throughout the year form about one quarter of the total marsh areas during the flood season, and seasonal marshes caused by flood water covering the lands surrounding perennial marshes which cannot hold all the flood water drained from the rivers. These are temporary, disappearing when there is water shortage and in the hot season; they form about three quarters of the total marshes area in southern Iraq.

In Basrah Region marshes areas are divided into three groups based upon their geographical location :

1. Marshes east of the Tigris River. These are named Al-Suwaib marsh, and are part of Al-Huwaiza marsh which covers an area of about 2,500-3,000 sq.km. during the flood season. It is a natural reservoir of flood water from the lower Tigris, with a total storage capacity of more than seven milliards cubic metres at 2-4 metres above sea level.⁽³²⁾ These marshes are usually fed not only by the branches of the Tigris, within Missan Region, but also by other rivers, such as the Karkha, which flow from the Iranian highlands. The Al-Suwaib marsh covers about 1,680 sq.km. during flood time. Generally, the depth of the water in this marsh reaches between 3 and 8 feet. Some of the water returns to the Tigris by two canals named Al-Rutta and Al-Suwaib.

2. The marshes west of the Tigris. These are named Zijry marshes and cover about 680 sq.km. They are part of the

large marsh areas within Basrah, Missan, and Thiqrar Regions, covering about 3,000 sq.km. These marshes are supplied with water by several courses which branch from the Tigris in Missan Region. Because the land level drops towards the south-east, some of this water returns to the Tigris by several courses, and indirectly by the old course of the Euphrates which connected these marshes by numerous canals. The average depth of the water of the perennial parts is about 4 feet, with deeper places towards the west locally named Al-Barriq.

3. The Al-Hammar marsh. This is south of the old Euphrates course and west of the Tigris, between Qurna and Garmat Ali. This marsh stretches about 100 km. from Suq Al-Shyukh City in the west to Garmat Ali in the east. According to Al-Kaiatt, it covers an area ranging from 2,000 sq.km. in normal conditions to 3,000 sq.km. during the high water season, the spring. About half of this area is within Basrah Region. The depth of water ranges from more than 2 metres in a few places to less than 1 metre in most areas. The Al-Hammar marsh is supplied with water not only by the Euphrates which flows into this marsh, but also by the Tigris, particularly in the flood season when some of its waters which feed the western marshes are discharged to the Al-Hammar. Some of the water returns to the Tigris by large courses such as Al-Shafi and Al-Majdia. Most of the water is carried by the Euphrates itself in the outlet course from this marsh into the Shatt Al-Arab river at Basrah City.

The water drainage mentioned above, within Basrah Region where the water returns from the marshes to the

Tigris, Euphrates and Shatt Al-Arab rivers, has caused these rivers to increase their discharge and extend their courses. The other reason for this phenomenon, according to some authors, is the tides which occur twice a day,⁽³³⁾ passing through Shatt Al-Arab up to the northern borders of the Region into the Tigris, to the western borders into the old course of the Euphrates as well as through the outlet course of the Euphrates from the Al-Hammar marsh. The tides in the Shatt Al-Arab raise the water level by approximately 50 cm. during periods of river floods, and by 2 metres during the rest of the year. The level gradually decreases upstream to about 60 cm. at Qurna during flood time. The tidal effect in the rivers is important for agriculture. Date gardens on both banks of the rivers are irrigated and drained twice a day. The river levee soils along the Shatt Al-Arab are non saline or only slightly saline, as a result of the tides.⁽³⁴⁾

Although the Tigris, Euphrates and their tributaries are the chief sources of water in Iraq, their discharges are controlled by the climatic conditions of their basin areas. Therefore, the volume of water in the Euphrates and Tigris varies considerably during the year, and so from one year to another. The great increase in the volume of the rivers during certain months is caused by rainfall and melting snow in the highlands of Anatolia, Iraq and Iran. They reach their highest water level in March, April, and May, and their lowest level at the end of the summer. The flood period in Basrah Region is longer than anywhere else in Iraq, because this region includes the lower basin of the Tigris and Euphrates, as well as consisting generally of lowlands and

being affected by the tides. Accordingly, it is difficult to drain the flood water into the Arab Gulf during a short period as happens in other regions of Iraq. In the high flood season nearly all of the alluvial plain in Basrah Region is inundated by the flood water which sometimes lasts from February till August, as happened in 1954 and 1969. On the other hand, in the low water level period all seasonal marshes become dry and their inhabitants suffer from the scarcity of surface water.

Since 1970, the Iraqi Government, Ministry of Irrigation has built many earth dams along the banks of rivers and the edges of marshes to protect the river levee areas from the flood waters; these are the main settlement areas in Basrah Region. Dams have also been built by the Iraqi Oil Ministry at different places in the marshes, because most of these marsh areas will be very important for oil production in the near future. This will obviously significantly affect the future of the marshes.

2. Ground Water

The importance and quantity of ground water varies from place to place within Basrah Region. In the alluvial plain this type of water resource is abundant, and in large parts of the plain its level is near the land surface or at a shallow depth, whereas it is above the surface in the marsh areas. But, here the ground water is useless because of the abundance of surface water on one hand, and on the other, because of the high salinity proportion of the ground water, which ranges from 10,000 to 60,000 parts per million. (35)

In the Al-Zubair desert, as a result of the specific character of the arid climate and the absence of surface water, the ground water has been and is still highly important for cultivation.

The ground water in this area is found in the Dibdibba formations which are proper reservoirs, supplied with water by the rainfall. There is probably a layer of fresh ground water over the deeper saline ground water, which will be in contact with sea-water. When pumping starts, the fresh water layer is used first and the level of the brackish water rises and finally reaches the bottom of the well.⁽³⁶⁾ The thickness of the first layer ranges from one metre to about 2.5 metres.⁽³⁷⁾ The ground water level also varies from one place to another, ranging from 5 metres under the land surface at Safwan in the south east, to 16 metres at Al-Zubair in the north east, and to 160 metres in the south west. At the same time, the salinity of ground water ranges from 713 - 1,327 parts per million to 4,650 - 8,455 p.p.m. and to 5,040 p.p.m. at the places mentioned above. It is remarkable that water with salinity of 445 - 1,374 p.p.m. is practicable and drinkable, while it is used only for irrigation if it is of 4,650 - 8,455 p.p.m.⁽³⁸⁾ But this salinity differs from season to season according to the variation of the rainfall, evaporation, and intensity of the irrigation.

The productional capacity of the ground water in this area of Basrah Region, also varies locally, where the average production of one well ranges from 45 - 60 gallons per minute at Al-Zubair to 50 - 70 g.p.m. at Safwan, and to 15 - 25 g.p.m. in the south west.⁽³⁹⁾

NATURAL VEGETATION

The arid climatic conditions of Basrah Region have determined the main plant life characteristics; however, local environmental factors mean that other types of natural vegetation are also to be found there. Accordingly, the Region includes three main areas.

1. Marshlands

These are the most important area of abundant plant life because of the plenteous water resources in both perennial and seasonal marshes, except for the very deep parts where the plants cannot grow. According to the depth of water the distribution of plant types varies from one place to another. The prevalent plant in the marsh margin areas is the rush, locally named Cholan. It grows up to 4-6 feet in seasonal marshes, less than five feet deep. It provides food for buffaloes and cattle, as well as fuel and materials for mat making for local inhabitants.

The bulrush, the next most prevalent plant in marshy areas, is usually found in the deeper water of seasonal marshes, between 4-7 feet deep. It is denser, and occupies a larger area than the Rush, reaching great heights, sometimes up to 12 feet. It is generally used for fuel, some house building in the rural areas, and compressed bulrush sheet making.

The reed is the most dominant plant in the marshlands, growing up to 12-16 feet, in the deepest water, of 6-10 feet. Its young stems provide the best food for buffaloes and cattle, while its fully grown stems are used by some of the rural

population for building their dwellings. Finally, at present, the reed forms the main raw material of the paper industry in Basrah Region, which will be considered in Chapter Five.

In addition to these main types of natural vegetation there are numerous species of short grass and floating plants in the marshlands. All the natural vegetation mentioned above is seasonal, growing in the spring and summer and drying up in the autumn and winter. (40)

2. River Banks

These too form an important area for plant life, particularly in the palm-groves where surface water and soil moisture encourage the growth of numerous species of short grasses and some small bushes on the land. The creeks and irrigation canals are often covered by floating plants and some of the marsh plants like the reed, bulrush and rush. Most of these plants grow during the spring and summer, some being used as food for sheep and cattle.

3. The Al-Zubair Desert

Because of the true desert climate and absence of surface water in this area, natural vegetation is very sparse. "Most of the persistent perennials are low bushy shrubs or sub-shrubs, much branched and compact, and rarely exceeding 2 feet in height. They are widely dispersed, taking advantage always of the slightest depression. The summer aspect of this desert, however, is poor, since two thirds of the total flora consist of annuals which disappear in the dry season. The advent of rain brings a spate of fleeting annuals and bulbous

perennials. Green shoots appear between the grey xerophytic bushes and in a few weeks, bright blooms enliven the scene. This mesophytic spring vegetation is green and colourful. Rainfall, however, is so uncertain that, although initial germination may take place, the seedlings may shrivel and die at an early stage."⁽⁴¹⁾ The spring vegetation is the favourite food of sheep, goats and camels; it can, however, sometimes remain green for 2-3 months depending on the rainy season. Scrub, dominated by thorn bushes, forms an important dietary item for camels in the summer months, and is also used by the local inhabitants for fuel.

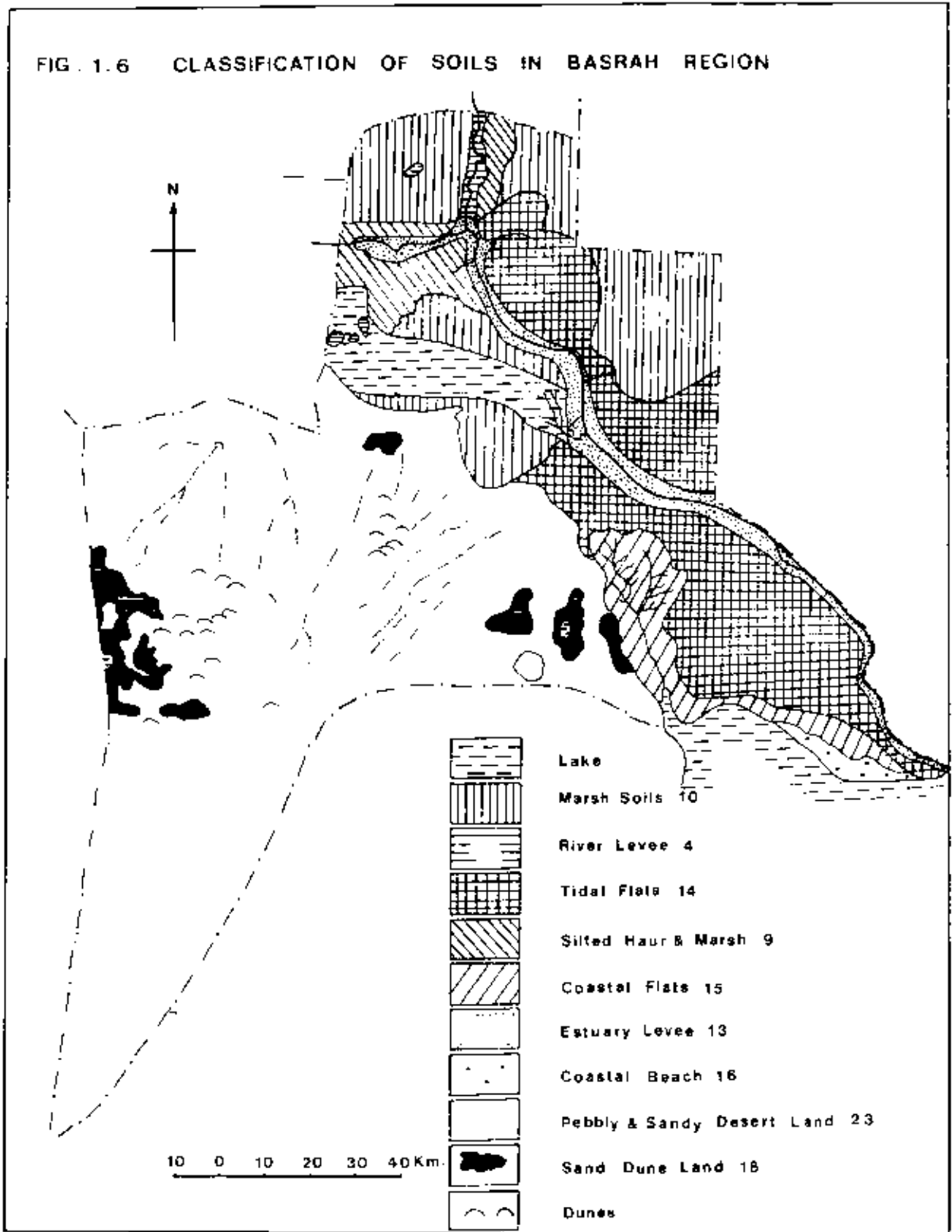
SOILS

In addition to all the physical factors instrumental in developing a soil's particular characteristics, when considering the pedology of Basrah Region, human activity emerges as an element of key significance because for thousands of years man has irrigated, levelled, drained, cultivated and thus greatly modified the land.

The influence of the physical and human factors on the formation of the various soils of Iraq differs. The action of the six soil forming factors : living material, climate, rock substructure, topography, time and human activity, has led to the formation of different soils in Basrah Region and in Iraq as a whole.

Buringh's classification divides the soils of Basrah Region into four great soil groups which include nine micro groups (Fig. 1.6).⁽⁴²⁾ A brief description of the characteristics of soils in each great group is given below.⁽⁴³⁾

FIG. 1.6 CLASSIFICATION OF SOILS IN BASRAH REGION



Source: After Buringh, P (1960)

1. Soils of the Marsh Region

The soils in this region are mainly loam, porous and friable, with large amounts of lime, and a considerable quantity of fine sand; they all have a high salinity. Most surface soils have an organic matter content of 2 to 3%; subsoils often consist of greenish-grey clay, gleyed, with a pH ranging from 7.9 - 9.0. The olive-grey soil layers in the marsh soils indicate saline and anaerobic conditions. This main group includes the micro soils groups Nos. 4, 9, and 10 (Fig.1.6).

2. Soils of The Estuary Region

This is mainly the Shatt Al-Arab region (including the old Shatt Al-Arab which is between the old confluence of the Tigris and Euphrates at Qurna and the new one at Basrah City), where hydrology and soils are influenced by the tides which effectively reaches up to Qurna and slightly beyond. The landscape consists of the estuary levees of Shatt Al-Arab and the extensive tidal mud flats behind the levees. These levee soils are the best agricultural soils in this region as a result of the tides, and although affected by salinity to a varied degree, they are used for date gardens, sometimes with a vegetable undergrowth. The tidal flats are waste lands, very high in salinity and exchangeable sodium; vegetation is completely absent.⁽⁴⁴⁾ There are wide areas with alkali soils west of the Shatt Al-Arab, which have a pH of 8.6 or higher. The sodium and boron content of the soils also seems to be high. This region includes the groups Nos.13 and 14.

3. Soils of the Coastal Region

Soils near the sea consist of extensive mudflats at the same level as the sea. They are often submerged by seawater over a distance of many kilometres inland. Sedimentation is marine; clays are sodium clays. The soil contains sea shells or their fragments. The soils near Fao are extremely saline and soft. The potential agricultural value of the coastal region seems to be very low. The groups Nos. 15 and 16 form the soils of this region, as shown in Figure 1.6.

4. Soils of the Al-Zubair Desert

This region is the Dibdibba region which consists of sand and gravel. Clay and silty clay soils occur in the larger saline depressions. Gravel is common along some wadis. Almost all the soils of the Dibdibba plain are sandy or gravelly. Soil samples of the Al-Zubair areas show 87-96% sand. Near Zubair well-pump irrigation is practised; however, after a few years the groundwater tends to become brackish and the soils become saline. The reason is the osmotic pressure, which is much higher in sandy than in clayey soils. In some wells the water became as saline as sea water, as mentioned previously. The sand dunes of this region are white to reddish-orange; the sands consist predominantly of quartz mixed with some limestone. This region includes groups Nos. 18 and 23, in both of which the organic matter content is extremely low as a result of the lack of vegetation.

Soil Salinity Problem

The principal process in the soils of central and southern Iraq is salinization, the accumulation of salts in

the soil. A saline soil contains soluble salts in such quantities that they interfere with the growth of most crop plants. According to this definition the pH of the saturated soil is usually lower than 8.5; the percentage of exchangeable sodium is smaller than 15% and the conductivity of the saturation extract is more than 4 millimohs per cm. at 25°C. The most common salt in saline soils is sodium chloride. Some other salts which occur are : calcium chloride, magnesium chloride, potassium chloride, gypsum, sodium sulphate, and magnesium sulphate. In most soils, mixtures of various salts occur. Due to salt accumulation, the soil solution will have an increasing osmotic pressure when more salt is dissolved. The result is a decrease in the physiological availability of water to the plant. In other words, it becomes more and more difficult for the plant roots to take water from the soil. Finally the salt concentration becomes so high that plants cannot take any water from the soil. Another effect is that the salt cations and anions in a concentrated soil solution prevent the plants from taking nutrients. Sometimes there is an accumulation of salts in the plants in toxic quantities. In particular, boron, is very toxic. Fruit trees especially are very sensitive. Soils with a high boron concentration occur in southern Iraq. Due to these influences the productivity of saline soils is very low. Soil salinity is also influencing the micro-organisms in the soil. Their activity stops completely when the salt content reaches 3%.

The presence of salts in the soil is a consequence of the arid climate. As rainfall is insufficient, the plants have to take water from the ground water or from irrigation water.

Due to evaporation or transpiration, there is an upward movement of ground water to the surface and this ground water always contains much salt. As plant roots take water only, these salts accumulate in the soil. In areas with a deep ground water table, land is irrigated at regular intervals by river water in the alluvial plain and by ground water in the Al-Zubair desert. The upper part of the soil becomes wet, the water is finally used by plants or evaporated and the salts remain in the soil. Gradually more salts accumulate and the soil becomes more saline. In extreme circumstances salt crusts can be formed on top of the surface soil. As precipitation is insufficient in Basrah Region, the salts accumulated in the soils are not washed out by rain water. The salt concentration of the river water in the Tigris and Euphrates is very low (200 to 400 p.p.m. or 0.2 - 0.4 g./l). This water is therefore very good irrigation water. However, regular irrigation during many hundreds of years has increased the salt content of the irrigated land. Land in Iraq can become saline in 7 to 25 years as a result of irrigation (Buringh 1960). A moderate irrigation depth of 300 mm. with an average salt content of 400 p.p.m. brings on to the field 300 kg. of pure salt per meshara.⁽⁴⁵⁾ Salinization of irrigated land becomes extremely important when drainage (natural and artificial) is poor as in the Region.

As well as the irrigation water and ground water which are considered the main source of salinity in the Region, there are other sources which contribute to soil salinity. These are : seepage, flooding and wind deposition of salts that have been blown from areas with surface salt crystals, as well as

the sea-water in the southern part of the plain where soils consist of sea deposits or are regularly flooded by sea-water. (46)

In fact, the physical conditions, already mentioned, in southern Iraq, and particularly Basrah Region contribute to the presence of soil salinity, and will continue to do so unless some effective measures are taken against it.

Moreover, the absence of artificial drainage, and the primitive farming methods which have been long followed by the farmers in the cultivated lands, have all contributed to an increase in the soil salinity problem in the Region.

There is no need to emphasize that an effective integrated irrigation-drainage system is the key to this problem.

Conclusion

The physical environment in Basrah Region includes positive and negative characteristics. The former are represented by several features. Many formations exist which contain commercial quantities of crude oil and natural gas, thus, Basrah Region is a very important region in reserves and production of these two materials in Iraq. These are the main factors in the recent development of the industrial sector in the Region, particularly the chemical and petrochemical industries. Moreover, the rich oil fields in Basrah Region have greatly increased the importance of the Gulf oil terminals of Iraq, which are found in the Region, as discussed in Chapters Five and Six. Other positive characteristics are the flatness and gentle gradient of the land

in the Region, which are important for the construction of factories, roads, railways, and the extension of settlements, both rural and urban, as well as being important for agricultural processes, particularly the use of machines, and irrigation which is essential in the Region. Temperature characteristics mean that opportunities are available for the cultivator to grow different types of crops in different seasons. Basrah Region also has plenty of water resources including surface and ground water, which can be and are used for agricultural, industrial, transport, and domestic purposes. The marshlands are important areas of abundant natural vegetation, which provides food for animals, fuel, and raw materials for some industries, such as reed for the paper industry. In Basrah Region soils are deep and sedimentary, both of which are positive for agriculture.

The negative characteristics of the physical environment in Basrah Region are firstly, the rainfall which is too low to cultivate land without irrigation. Secondly, dust-storms are common in summer, causing much damage to the agricultural yields, and affecting people's health. Thirdly, the problems related to the discharge of surface water in the Region, where large areas of the alluvial plain are covered by flood water during the high water level, while in the low water level period all seasonal marshlands become dry and their inhabitants suffer from the scarcity of surface water. In the Al-Zubair area ground water, the sole resource, becomes saline when pumping starts and the fresh water layer, which is over the deeper saline layer, is used first.

Fourthly, soil salinity is a serious problem facing agriculture in the Region. Yet unless effective measures are taken by the government to control the discharge of surface water, irrigation, and soil salinity, these problems will certainly continue.

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CHAPTER TWO

THE POPULATION OF BASRAH REGION

Aware of the impact of demographic characteristics on social, economic, and other aspects of community life, and, indeed, vice versa, this chapter seeks to discuss some of those characteristics of Basrah Region and City, comprising population growth, urban and rural population, age and sex structure, economically active population, and migration in order to reveal these relationships.

Population Data

The population data employed in this chapter, is derived from the general censuses of population, which were carried out in Iraq in 1947, 1957, 1965, and 1977.⁽¹⁾ The accuracy of these censuses has increased steadily since 1947. The most recent one is considered more accurate and satisfactory than the three others and therefore, not only because it is the most up to date, it has been the most heavily relied on for the population data.

These censuses differ in quality of information (because of the design of the census's form) and number of administrative units, so it is difficult to draw comparisons with some population features. Basrah Region had three administrative sub-divisions in each of the 1947 and 1957 censuses, five in 1965 and six in 1977. However, Shatt Al-Arab which was considered a smaller sub-division (Nahia) in the 1965 census and a main sub-division (Qadha) in the

1977 census, retained the same administrative boundaries in spite of having a different level of administrative function. Therefore, for the purpose of comparison, we have considered it as a main sub-division in 1965, like the other Qadhas in Basrah Region, (see Fig.2.1).

There is a considerable problem with the 1965 and 1977 censuses, in that the most detailed data contained in these is not published and it is very difficult, and sometimes impossible, to obtain it.

The vital statistics of population are lacking and inaccurate, because there is no accurate registration of these vital data throughout Iraq. So the available statistics cannot reflect the real situation of the mortality and natality rates of the population, thus, we have avoided the use of these data sets.

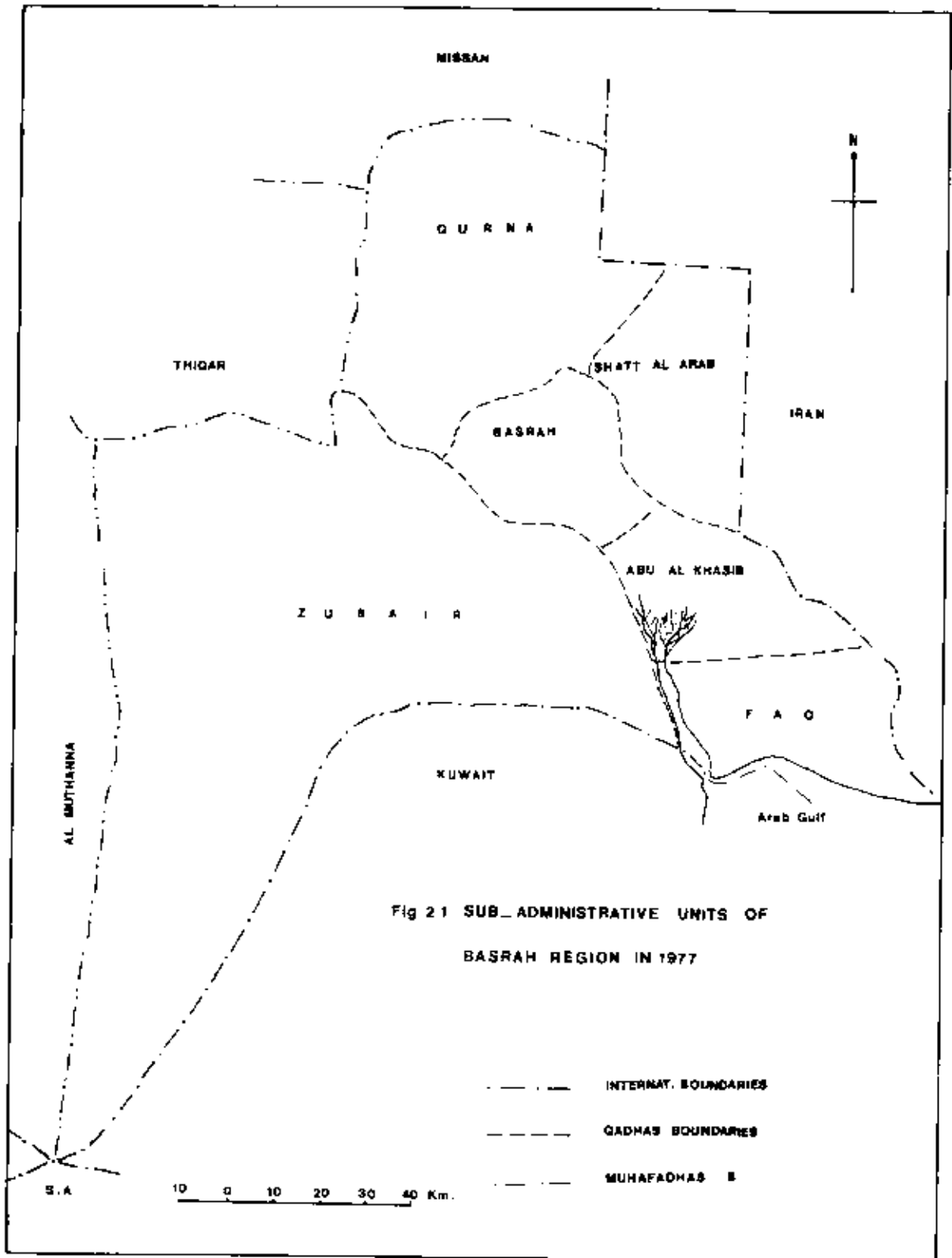
Population Growth

As shown in Table 2.1 and Figure 2.2, the total population of Basrah Region has continuously increased since 1947. The table shows that during the period 1947-1957, the average annual population growth rate in the Region was 3.2 per cent, compared with that of 2.7 per cent in Iraq as a whole.* During 1957-1965 the growth rate in Basrah Region was 3.6 per cent, and the national growth rate was 3.1 per cent. Between 1965-1977 the population of the Region grew at an annual rate of 3.5 per cent, compared with 3.4 per cent in the whole country. (3)

* To calculate the annual growth rate of population, we have used the formula below :

$$r = \left(\sqrt[t]{\frac{Pt}{Po}} - 1 \right) \times 100$$

where: P_o is the population in the first census
 P_t is the population in the second census
 t is the number of years between the two censuses
 r is the annual percentage rate of change.(2)



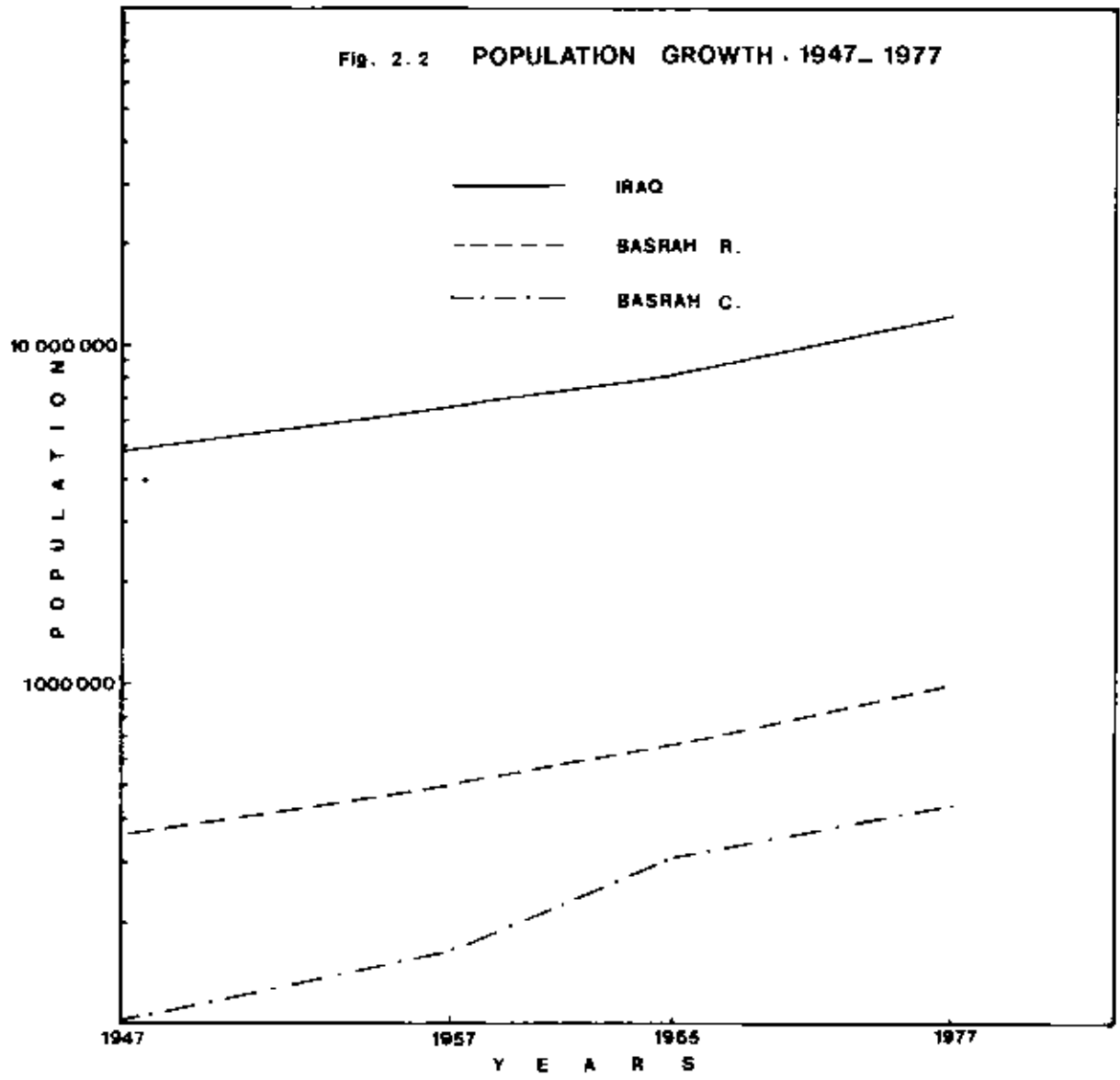


TABLE 2.1 TOTAL POPULATION AND AVERAGE ANNUAL GROWTH RATE, BASRAH REGION

1947-1977

Period Between Census Years	Total Population		Difference Between the Two Censuses	Average Annual Growth Rate %	
	In The First Census	In The Second Census		Basrah Region	IRAQ
1947-1957	368,799	503,330	134,531	3.2	2.7
1957-1965	503,330	669,479	166,149	3.6	3.1
1965-1977	669,479	1,008,026	339,147	3.5	3.1

- Sources :
1. Census of Iraq, 1947.
 2. Census of Iraq, 1957.
 3. Census of Iraq, 1965.
 4. Census of Iraq, 1977.

Population growth is affected by two factors : migration, or natural increase, or both. In Basrah Region, both of these two factors have substantially increased the population. Internal migration, which has been very important in Iraq since the end of the Second World War, has been an essential factor affecting population growth in areas of immigration and in areas losing population. Basrah Region is the second most important in-migration area (after Baghdad Region) in the country; this will be discussed in the last section which deals with migration. Also, migration is the reason for the growth of Basrah Region's population at an annual rate higher than the national growth rate since 1947.

Natural increase, of course, is the other factor which has led to the growth of population in both Basrah Region and Iraq as a whole. Although the accurate data about natural increase in Iraq are not available, the figures shown in the migration section in this chapter, compared with those shown in Table 2.1, can all throw light on the importance of natural increase in population growth. Excluding the population increase caused by migration, the remainder of the total increase of population is, of course, the result of natural increase. This is mainly attributed to the rising standard of living in Iraq since the early 1950's, for reasons which will be discussed in detail in later chapters; because of this, the mortality rate has declined, particularly infant mortality, while birth rates have remained high. All of these have been clearly reflected in the age-structure of population in Iraq including Basrah City, shown by the population pyramids (see Figures 2.4 and 2.5). These figures show that these

pyramids have a broad base that tapers rapidly with age. This means that the young age groups form a high proportion of the total population, a proportion that has increased because of the natural increase already mentioned.

In the Qadhas of Basrah Region, as shown in Table 2.2, the annual population growth rate differs from Qadha to Qadha during the period 1965-1977. It is highest in Al-Zubair Qadha (7.9%), followed by Basrah Qadha (3.3%). In Qurna (2.8%), Fao (2.7%), and Shatt Al-Arab (2.7%), the growth rates are below the average of Basrah Region (3.5%); while the lowest rate is in Abu Al-Khasib Qadha (1.9%).

The main cause of this difference between Qadhas is attributed to migration. Al-Zubair Qadha includes the most important industrial and oil establishments in both Basrah Region and Iraq, as well as ports and military establishments. Therefore, this Qadha has become a significant in-migration area. Basrah Qadha has the second highest growth rate because it includes Basrah City which is the richest settlement in the Region in employment opportunities and social services. Also, the existence of the paper factory in this Qadha has attracted a large number of people. The other Qadhas depend mainly on natural increase in population growth and, moreover, some of their population migrate elsewhere for work or other purposes. There has been limited migration against the general trend into these Qadhas, but because of the relatively small number they have not significantly affected the population growth rate there.

In Basrah City the population has increased greatly since 1947. Table 2.3 shows that, in spite of the continuous

TABLE 2.2 TOTAL POPULATION AND AVERAGE ANNUAL GROWTH RATES IN THE QADHAS
OF BASRAH REGION, 1965-1977

Sub-Region (Qadha)	Total Population		Difference Between the two Censuses	Average Annual Growth Rate %
	In The First Census	In The Second Census		
Basrah	353,242	524,002	170,760	3.3
Shatt Al-Arab	52,709	72,370	19,661	2.7
Abu Al-Khasib	61,465	76,912	15,447	1.9
Fao	37,734	51,759	14,025	2.7
Qurna	114,064	158,372	44,308	2.8
Al-Zubair	50,265	125,211	74,946	7.9
Basrah Region	669,179	1,008,626	339,447	3.5

Sources: 1. Census of Iraq, 1965
2. Census of Iraq, 1977

TABLE 2.3 TOTAL POPULATION AND AVERAGE ANNUAL GROWTH RATE, BASRAH CITY, 1947-1977

Period Between Census Years	Total Population		Difference Be- tween the two Censuses	Average Annual Growth Rate %
	In the First Census	In the Second Census		
1947-1957	101,535	164,905	63,370	1.9
1957-1965	164,905	310,950	146,045	8.5
1965-1977	310,950	452,102	141,152	3.2

Sources : 1. Census of Iraq, 1947
 2. Census of Iraq, 1957
 3. Census of Iraq, 1965
 4. Census of Iraq, 1977

increase in the total population of the city during 1947-1977, the average annual population growth rate varied from one period to another. During the periods 1947-1957 and 1957-1965 the population growth rate of Basrah City was much higher than that of Basrah Region as a whole, because the majority of migrants preferred to live in this city for reasons already mentioned. During 1965-1977 the growth rate of the city's population was lower than that of the previous periods, and it was also lower than that of the whole Region for this period. This is because a high proportion of the people who migrated to Basrah Region during the 1970's lived in Zubair Qadha in particular, and this is why the population growth rate of this Qadha was the highest in Basrah Region as a whole during 1965-1977 (see Table 2.2). Moreover, some people who migrated to Basrah City preferred to live in its suburbs, particularly Al-Hariba and Shatt Al-Arab, because of problems related to residence in Basrah City, problems which have recently doubled.

Urban and Rural Population

In Iraq, according to national law and, thus, also in the population censuses, definitions of 'urban' and 'rural' population are entirely based on residence location. Table 2.4 shows that the proportion of urban population in Basrah Region has substantially increased since 1947. It rose from 39.3% of the total population in the Region in 1947, to 46.9% in 1957, and from 62.1% in 1965 to 79.4% in 1977. In Iraq as a whole the proportion of urban population increased from 33.6% to 39.2%,⁽⁴⁾ 51.1%, and 63.7% respectively of the

TABLE 2.4 DISTRIBUTION OF POPULATION BY RURAL AND URBAN, IN BASRAH REGION,

1947-1977

Year of Census	Urban Population		Rural Population		Total Population
	%	Number	%	Number	
1947	39.3	145,118	60.7	223,681	368,799
1957	46.9	236,205	53.1	267,125	503,330
1965	62.1	415,718	37.9	253,731	669,449
1977	79.1	800,453	20.6	208,173	1,008,626

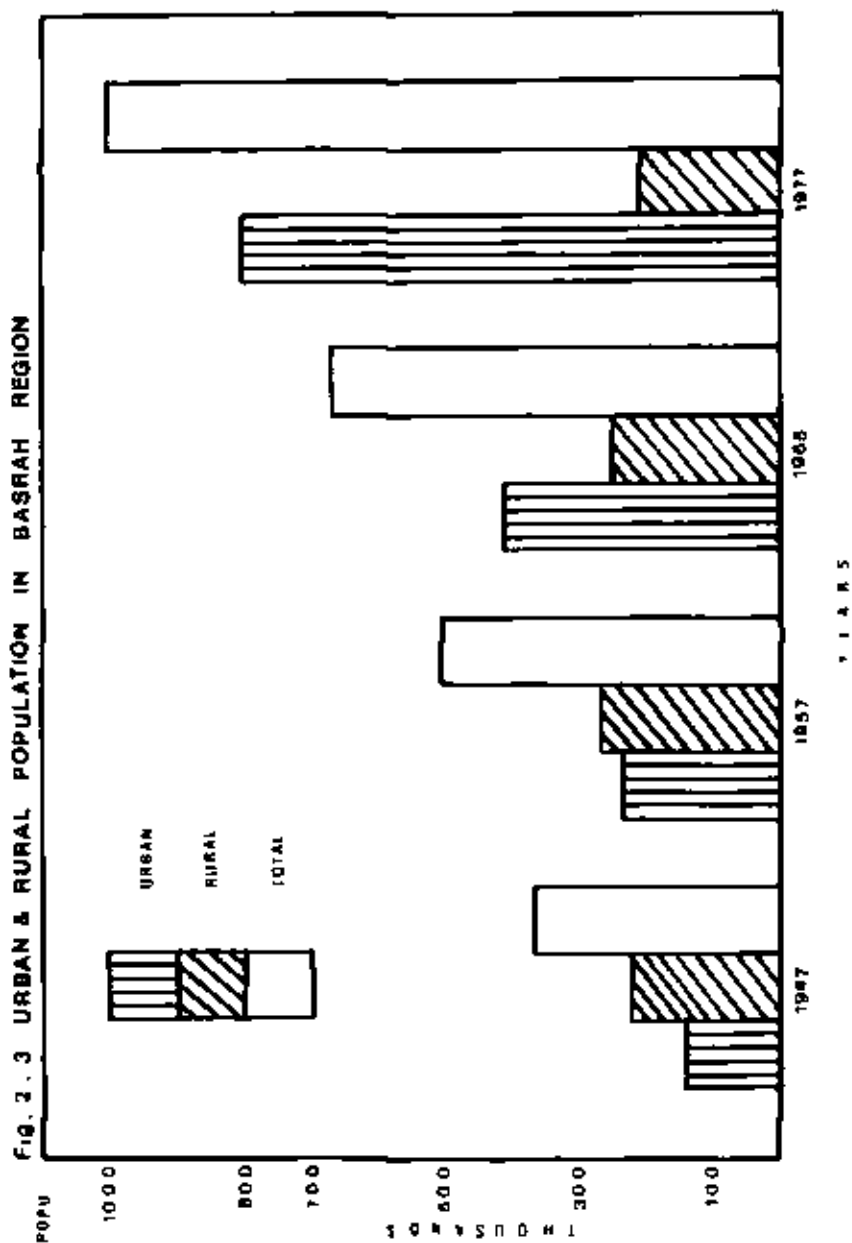
Sources

1. Census of Iraq, 1947
2. Census of Iraq, 1957
3. Census of Iraq, 1965
4. Census of Iraq, 1977

total population. By definition, the proportion of rural population in the Region has greatly decreased, from 60.7% of the total population in 1947, to 53.1% in 1957, and from 37.9% in 1965 to 20.6% in 1977, compared with the national proportion which decreased from 66.4%, to 60.8%,⁽⁵⁾ 48.9% and 36.3% respectively. Moreover, Table 2.4 shows that the total rural population in Basrah Region increased slightly during the period 1947-1957, and decreased during the periods 1957-1965 and 1965-1977, (see Figure 2.3).

In the light of the above figures, it can be said that in Iraq the process of urbanization has taken place substantially since the Second World War due to massive rural-to-urban migration, together with a higher rate of natural increase in towns and cities, resulting in rapid urban growth.⁽⁶⁾ In addition, some rural settlements in Iraq, including Basrah Region have been transformed into urban settlements. This change has taken place because firstly, their functional structures and therefore their internal structures have developed over the last three decades and they have become centres for administrative units; secondly, new administrative units have been created with one of their villages as administrative centre, and these villages have become municipalities; thirdly, the municipal councils of some cities or towns have extended their boundaries so that the nearby villages are now covered by urban public services. All these cases are counted as urban areas in Iraqi law and, thus, also in the population censuses.

The process of urbanization has been extensive in the country in recent years, and Iraq is now one of the most



urbanized of the Middle East countries, excepting always the 'city states' of the Gulf. (7)

A comparison between the Qadhas of Basrah Region (see Table 2.5) shows that Qadhas differ in the proportions of urban and rural population, as well as in the rank of the proportions from census to census. In 1965 Basrah Qadha had the highest proportion of urban population, followed by Al-Zubair, Fao, Shatt Al-Arab, Abu Al-Khasib and Qurna. However, while Basrah and Zubair had the highest proportion (90.7% and 85% respectively), much more than the average proportion of urban population in Basrah Region (62.1%), the other Qadhas had a low proportion much less than the average in the Region (37.9%, 25.7%, 24.5% in Fao, Shatt Al-Arab and Abu Al-Khasib); in addition to this, Qurna had the lowest proportion (8.7%) in that year.

All Qadhas, with the exception of Al-Zubair Qadha, were important agricultural areas and agriculture was the main occupation in the Region. Therefore, the majority of people lived in rural areas, and the urban population was concentrated in the few small towns. These had no more than 15,000 inhabitants, with the exception of Basrah City which, with its 310,950 inhabitants, resulted in the higher proportion of urban population in Basrah Qadha. Al-Zubair Qadha is a desert area with no surface water and includes very few settlements with urban functions. In 1965, the majority of the population (81.9%) lived in Al-Zubair City.

According to the 1977 Census, Basrah Qadha continued to have the highest proportion of urban population (92.5%),

TABLE 2.5 DISTRIBUTION OF POPULATION BY RURAL AND URBAN IN THE QADHAS OF BASRAH REGION, 1965-1977

Sub-Regions (Qadhas)	Census of 1965			Census of 1977					
	Urban Population		Total	Rural Population		Total			
	%	Number		%	Number				
Basrah	90.7	33,025	9.3	353,242	184,545	92.5	39,157	7.5	524,002
Shatt Al-Arab	25.7	59,151	74.3	52,709	58,674	81.1	13,605	18.9	72,370
Abu Al-Khasib	24.5	46,423	75.5	61,165	56,242	73.1	20,670	26.9	76,912
Fao	37.9	23,138	62.1	37,734	30,176	77.6	11,583	22.4	51,759
Qurna	8.7	101,173	91.3	114,064	71,572	43.2	86,800	54.8	158,372
Al-Zubair	85.0	7,537	15.0	50,266	89,244	71.7	35,907	28.7	125,211
Basrah Region	62.1	253,731	37.9	669,479	800,153	79.4	208,173	20.6	1,008,626

- Sources
1. Census of Iraq, 1965
 2. Census of Iraq, 1977

Shatt Al-Arab took second place (81.1%) instead of Al-Zubair, which went down to fifth place (71.3%). Fao retained third (77.6%), Abu Al-Khasib rose to fourth place (73.1%), and Qurna still had the lowest proportion (45.2%).

By comparing proportions in Qadhas with the average proportion of Basrah Region (79.4%), it appears that the proportions in Basrah Qadha and Shatt Al-Arab Qadha are higher than average; in Fao, Abu Al-Khasib, and Al-Zubair they are slightly lower, and in Qurna very much lower.

So the proportion of the total increase of urban population from 1965 to 1977, differs from Qadha to Qadha. It is highest in Qurna (an increase of 723% of the total urban population in 1965), and lowest in Basrah Qadha (151%). Between these extremes are : Shatt Al-Arab (132%), Abu Al-Khasib (373%), Fao (281%), and Al-Zubair (208%), while the average proportion of the total increase of the Region in 1977 was 192% of the total urban population in 1965. However, it should be noted that these figures only describe the proportion of the increase of urban population in each Qadha itself, and not the absolute increase of urban population during that period. Here, the situation is very different, as shown in Table 2.5, where, for instance, the total increase in Basrah Qadha (which had the lowest proportion of increase) is 164,329 persons, and in Qurna Qadha (which had the highest proportion) it is 61,681 persons forming 37% of the total increase of Basrah Qadha.

In fact, the main reason for the large increase of urban population in some of the Qadhas can be attributed to

the previously mentioned administrative changes which have taken place since 1965, and have resulted in an artificial and deceptive increase in urban population.

Generally, the total urban population has continuously increased in all Qadhas, without exception, since 1965, and the total rural population has also increased over the same period. However, while the proportion of urban population was higher than that of rural population only in Basrah Qadha and Al-Zubair Qadha, and it was lower in other Qadhas in 1965, it became higher in all Qadhas by 1977, except in Qurna Qadha where it was lower in that year (urban population 45%). Rural characteristics still dominate the social life in Qurna Qadha much more than in other Qadhas because of its environmental conditions.

However, the data about distribution of urban and rural population taken from censuses does not reflect the real situation of this distribution, because of the administrative base which has been used by censuses in Iraq. This will be considered in detail in Chapter 3.

Sex Structure

'The sex ratio, or number of males per 100 females in a population, is the most universal measure of sex composition. Unquestionably the nature of the sex ratio greatly influences the form and tempo of life in any society. It is equally certain that proportions of men and women have a bearing upon marriage, birth, and death rates. Moreover, many economic and social relationships are closely related to the balance or disparity between numbers of males and females. Equally, of

course, important deviations from a balanced sex ratio originate from many causes such as difference of birth and death rates, migration, war, occupation, and the relative treatment accorded to males and females in a particular society.¹⁽⁸⁾

In Basrah Region, the sex ratio differs with variations in time and place. As shown and defined in Table 2.6, the sex ratio has continuously increased since 1947 in both Basrah Region and Iraq as a whole. In 1947, the sex ratio was low because a high proportion of the males in Iraq, including Basrah Region, were registered as females or were never registered in the 1947 census to escape from the conscription law. In the 1957 census, the sex ratio increased slightly in Basrah Region, because this census was comparatively more accurate than the previous one; also the immigration from the southern regions of Iraq included a high proportion of males without their families, particularly during the first stage of their migration. However, the number of males remained lower than that of females in the 1957 census, for the same reason that affected the 1947 census; moreover, a number of males had emigrated from Basrah Region to Kuwait State to work in the 1950's, particularly from rural areas in the Region. According to the 1965 census, the sex ratio increased to 102.2 because of the much greater accuracy of this census, and because the population had come to understand the nature and importance of censuses. The other causes are the return of most of the Iraqi migrants from Kuwait in the 1960's, and the continuous internal migration to Basrah Region. In the 1977 census, the sex ratio increased greatly in both Basrah

TABLE 2.6 DISTRIBUTION OF POPULATION BY SEX IN BASRAH REGION 1947-1977.

Year of Census	Number		Total Population	Sex Ratio*	
	Males	Females		Basrah Region	Iraq
1947	183,723	185,076	368,799	99.3	88.2
1957	251,030	252,300	503,330	99.5	100.3
1965	338,430	331,040	669,470	102.2	103.9
1977	526,063	482,563	1,008,626	109.0	106.3

Sources : 1. Census of Iraq, 1947
 2. Census of Iraq, 1957
 3. Census of Iraq, 1965
 4. Census of Iraq, 1977

* Sex Ratio = $\frac{\text{Males}}{\text{Females}} \times 100$

Region and Iraq as a whole (109.0 and 106.3 respectively), because of the males-selective foreign immigration which has increased rapidly since 1973.

Table 2.7 shows that in Basrah Region the sex ratio differs from one Qadha to another in the 1965 and 1977 censuses. In both censuses it is highest in Al-Zubair Qadha, because of the concentration of military and oil establishments there. There were also several large industrial projects under construction in this Qadha. In all these establishments a great number of males are employed. The nature of their jobs and the kind of life in these establishments, which are in a desert area far from the urban centres, prevent most of them from bringing their families.

The sex ratio was also high in Fao Qadha. This can be attributed to the uncomfortably high temperature and humidity; there was a lack of social amenities, particularly the accommodation in Fao City;⁽⁹⁾ furthermore, this Qadha is an outlying area and until recently was joined to the rest of Basrah Region by an unpaved earthen road. All these factors forced some of the male employees to live there without their families.

The lowest sex ratios are in Qurna, Shatt Al-Arab, and Abu Al-Khasib, which are all agricultural areas and the majority of their population is rural. Agricultural problems, together with the increasing employment opportunities elsewhere have caused most of the labour force (usually males) to transfer from agricultural work to other economic activities in other Qadhas in Basrah Region or outside the Region.

Table 2.7 shows that the sex ratio differs between

TABLE 2.7
SEX RATIO OF RURAL AND URBAN POPULATION IN THE QADHIAS OF BASRAH REGION,
1965-1977

Sub-Region (Qadha)	Census of 1965			Census of 1977		
	Urban	Rural	Total	Urban	Rural	Total
Basrah	103.4	97.9	102.9	107.9	102.1	107.5
Shatt Al-Arab	99.2	93.5	94.9	99.9	95.9	99.1
Abu Al-Khasib	100.9	100.9	100.9	101.4	100.3	101.1
Fao	121.7	106.4	106.7	106.5	97.5	104.4
Qurna	103.7	99.7	100.0	94.9	92.4	93.8
Al-Zubair	103.9	145.9	109.3	117.9	393.5	158.9
Basrah Region	103.4	100.4	102.2	106.3	120.3	109.0
Iraq	106.1	101.8	103.9	108.5	102.4	106.3

Source : 1. Census of Iraq, 1965

2. Census of Iraq, 1977

urban and rural population. Except for Al-Zubair Qadha, in all the cases shown in the table, the sex ratio was higher in urban than in rural population, in both Iraq and Basrah Region, in the 1965 and 1977 censuses. This is due to the rural-to-urban migration which is male-selective. It should be noted that in Al-Zubair Qadha all the previously mentioned establishments, which have led to the excess of males, are located outside urban areas, and are therefore considered as rural areas in the censuses. The very much higher sex ratio in this Qadha (393.5) resulted in, at the same time, a higher ratio in Basrah Region as a whole in 1977 (see Table 2.7).

In Basrah City there was an excess of males in all the censuses as can be seen in Table 2.8. The table shows that the sex ratio was higher in 1947 and 1977 than in 1957 and 1965. During the 1940's a high proportion of the migrants from the southern regions of Iraq and from the rest of Basrah Region to this city were males. In the 1970's foreign immigration was responsible for the high ratio in the 1977 census. The emigration of males to work in Kuwait in the 1950's and 1960's resulted in a lower sex ratio in Basrah City in the 1957 and 1965 censuses.

However, the sex imbalance is not as important as the role of each sex in the community and the extent to which persons of each sex play a part in practical life overall and particularly in economic activities. The importance and effectiveness of one sex is determined by social and economic conditions in any community. In a region such as Basrah Region the economically active population consists of the males much more than the females, and this will be considered

TABLE 2.8 DISTRIBUTION OF POPULATION BY SEX IN BASRAH CITY 1947-1977

Year of Census	Number		Total Population	Sex Ratio
	Males	Females		
1947	53,762	47,773	101,535	112.5
1957	84,035	80,870	164,905	103.0
1965	158,259	152,691	310,950	103.6
1977	235,328	216,774	452,102	108.6

Sources : 1. Census of Iraq, 1947
 2. Census of Iraq, 1957
 3. Census of Iraq, 1965
 4. Census of Iraq, 1977

in detail later in this chapter. The females play a greater part and are more effective economically in the rural areas than in the urban areas. However, since 1973 the proportion of employed females has increased rapidly, particularly in the urban population, because of the great social and economic developments which have taken place in Iraq as a whole.

Age Structure

The age structure is one of the most basic characteristics of a population. It is essential for any estimates of future population growth, and necessary for determining many aspects of community life and social and economic planning. Age structure should also be taken into consideration when comparing countries in terms of other population characteristics, such as birth and death rates, for instance. Age structure is determined mainly by fertility, for the number of children being born in a country in any one year obviously affects the future age structure. Other variables such as migration, war, famine, and economic recession may also affect age structure, either through influencing fertility rates, or by producing abnormal death rates within a certain age structure. (10)

As shown in Figures 2.4, 2.5, 2.6, and 2.7, the population pyramids - of Basrah Region and City, urban and rural areas - have a broad base that tapers rapidly with age, similar to the age pyramid shape of Iraq. This kind of age structure of population means that the young groups form a high proportion of the total population, particularly the group under 10 years of age (see Tables 2.9, 2.10, 2.11 and 2.12). These pyramids show a nearly normal distribution of age structure in Basrah Region, because this Region has not suffered unusual

FIG. 2.4 AGE - SEX STRUCTURE OF POPULATION IN BASRAH REGION , 1977

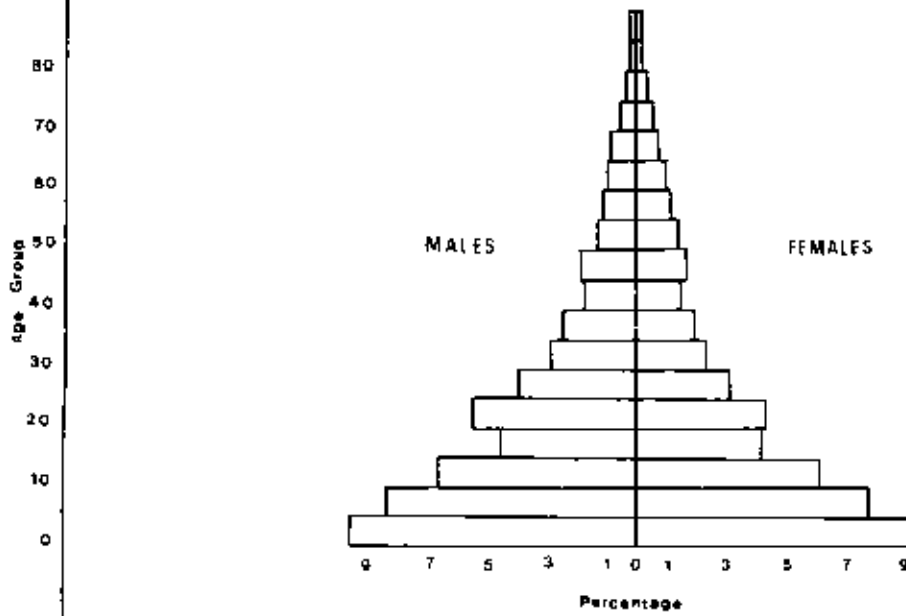


FIG. 2.5 AGE - SEX STRUCTURE OF POPULATION IN BASRAH CITY 1977

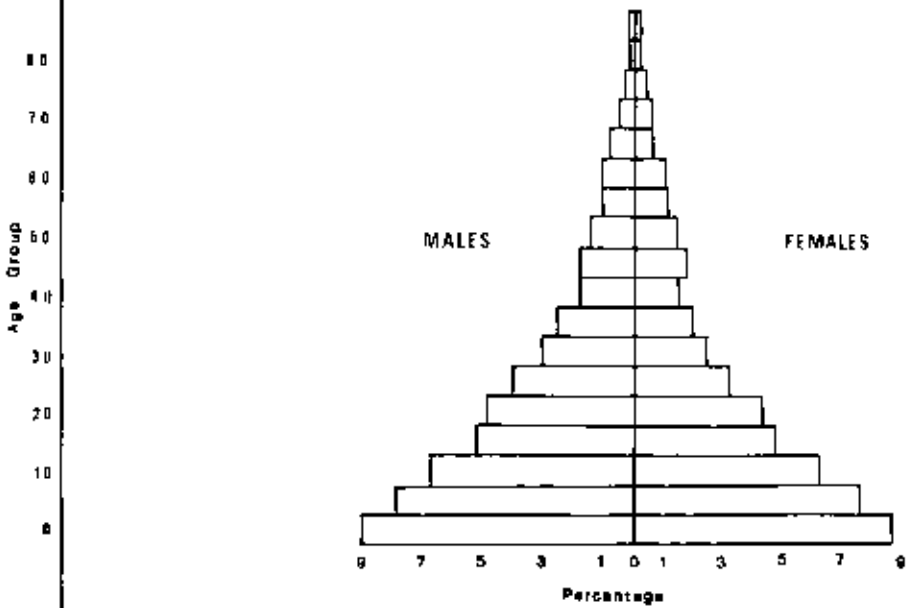


Fig. 2.6 AGE - SEX STRUCTURE OF URBAN POPULATION IN BASRAH REGION, 1977

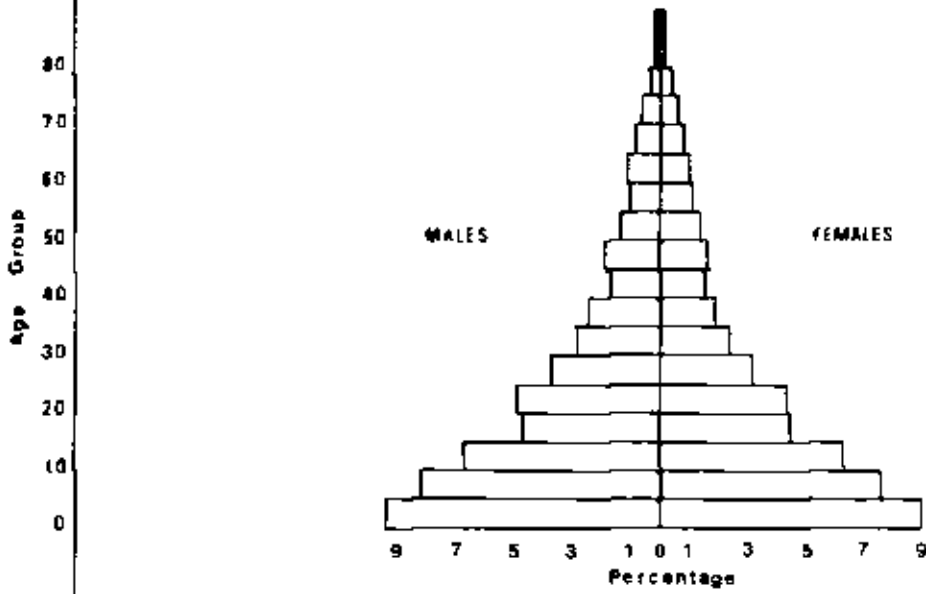


Fig. 2.7 AGE - SEX STRUCTURE OF RURAL POPULATION IN BASRAH REGION, 1977

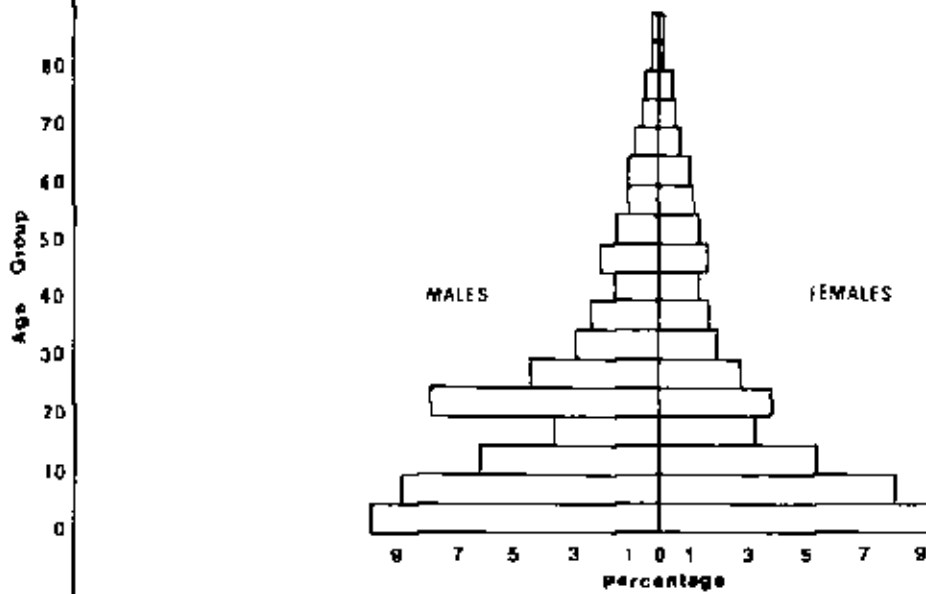


TABLE 2.9 DISTRIBUTION OF POPULATION BY 5-YEAR AGE GROUPS IN BASRAH REGION, 1977

Percentage	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85-	Tot.	
Males	9.5	8.3	6.6	4.5	5.4	3.8	2.8	2.4	1.7	1.8	1.3	1.0	1.0	0.8	0.5	0.3	0.2	0.2	0.1	52.2
Females	9.1	7.8	6.1	4.2	4.3	3.1	2.3	1.9	1.5	1.7	1.4	1.1	1.0	0.8	0.6	0.4	0.2	0.2	0.1	47.8
Total	18.6	16.1	12.7	8.7	9.7	6.9	5.1	4.3	3.2	3.5	2.7	2.1	2.0	1.6	1.1	0.7	0.4	0.4	0.2	100.0

TABLE 2.10 DISTRIBUTION BY 5-YEAR AGE GROUPS OF URBAN POPULATION IN BASRAH REGION, 1977

Percentage	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85-	Tot.	
Males	9.4	8.2	6.7	4.7	4.8	3.7	2.8	2.4	1.7	1.8	1.3	1.0	1.1	0.8	0.5	0.3	0.1	0.1	0.1	51.5
Females	9.0	7.8	6.3	4.5	4.4	3.2	2.4	1.9	1.5	1.7	1.4	1.1	1.0	0.8	0.6	0.4	0.2	0.2	0.1	46.5
Total	18.4	16.0	13.0	9.2	9.2	6.9	5.2	4.3	3.2	3.5	2.7	2.1	2.1	1.6	1.1	0.7	0.3	0.3	0.2	100.0

TABLE 2.11 DISTRIBUTION BY 5-YEAR AGE GROUPS OF RURAL POPULATION IN BASRAH REGION, 1977

Percentage	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85-	Tot.	
Males	9.9	8.8	6.1	3.6	7.8	4.3	2.8	2.3	1.5	2.0	1.3	1.0	1.0	0.7	0.5	0.1	0.2	0.2	0.2	51.6
Females	9.4	8.1	5.4	3.3	3.0	2.9	2.0	1.7	1.4	1.7	1.3	1.1	0.9	0.7	0.6	0.5	0.2	0.2	0.1	45.1
Total	19.3	16.9	11.5	6.9	11.7	7.2	4.8	4.0	2.9	3.7	2.6	2.1	1.9	1.4	1.2	0.6	0.4	0.4	0.3	100.0

TABLE 2.12 DISTRIBUTION OF POPULATION BY 5-YEAR AGE GROUPS IN BASRAH CITY, 1977

Percentage	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85-	Tot.	
Males	9.0	7.8	6.7	5.2	4.0	4.0	3.0	2.5	1.8	1.8	1.4	1.0	1.0	0.8	0.5	0.3	0.1	0.1	0.1	52
Females	8.6	7.5	6.2	4.7	4.3	3.2	2.4	1.9	1.5	1.7	1.4	1.1	1.0	0.8	0.6	0.1	0.2	0.2	0.1	48
Total	17.6	15.3	12.9	9.9	8.2	7.2	5.4	4.4	3.3	3.5	2.8	2.1	2.0	1.6	1.1	0.7	0.3	0.3	0.2	100.0

Source : Census of Iraq, 1977.

conditions such as war, for instance. And if some deviation from this normal distribution is noted in the pyramid of the Region and of rural population for the age groups 20-24 and 25-30 years, this can be attributed to the age-sex selective migration which includes a high proportion of young male adult workers, especially in these two age groups.

Generally, in the study of age structure, population is divided into three main groups : the children or young under 15, the adults from 15 to 64, and those aged 65 and over.⁽¹¹⁾ The age structure of population in Basrah Region will now be discussed according to this division.

1. The young group (under 15 years)

The Tables 2.13 to 2.16 show that the proportion of these groups has increased in the population of Basrah Region and City, in both urban and rural areas, because of rising birth rates. These were the result of high fertility, increased marriage rates, and decreasing infant mortality rates because the social, economic and health conditions have improved in the last two decades. The proportion of this group was 43.6% in 1957, and rose to 47.4% by 1977 which approached the national proportion (48.9% in 1977). In urban areas it increased from 46.7% in 1965 to 47.4% by 1977, the same as the national figure (47.4%). In rural areas it was 47.6% in 1965, became 47.7% in 1977, compared to 51.6% in Iraq. This was because of the high proportion of adults in Basrah Region which effectively lowered the proportion of the young group. In Basrah City it rose from 41.8% in 1957 to 45.8% in 1977.

TABLE 2.13 THE MAIN AGE GROUPS OF POPULATION, BASRAH REGION

Year	Sex	Percentage of Age Groups		
		0-14	15-64	65 and over
1957	Males	22.4	25.6	1.9
	Females	21.2	26.4	2.4
	Total	43.6	52.0	4.3
1965	Males	24.4	24.1	2.0
	Females	22.7	24.0	2.6
	Total	47.1	48.1	4.6
1977	Males	24.4	25.7	2.0
	Females	23.0	22.5	2.2
	Total	47.4	48.2	4.2

Sources : 1. Census of Iraq, 1957
 2. Census of Iraq, 1965
 3. Census of Iraq, 1977

TABLE 2.14 THE MAIN AGE GROUPS OF POPULATION IN BASRAH CITY,
1957-1977

Year	Sex	Percentage of Age Groups		
		0-14	15-64	65 and over
1957	Males	21.5	27.6	1.6
	Females	20.3	26.4	2.2
	Total	41.8	54.0	3.8
1977	Males	23.5	26.6	1.8
	Females	22.3	23.2	2.0
	Total	45.8	49.8	3.8

Sources : 1. Census of Iraq, 1957
 2. Census of Iraq, 1977

TABLE 2.15 **THE MAIN AGE GROUPS OF URBAN POPULATION, BASRAH**
REGION, 1965-1977

Year	Sex	Percentage of Age Groups		
		0-14	15-64	65 and over
1965	Males	24.1	24.8	1.8
	Females	22.6	24.0	2.5
	Total	46.7	48.8	4.3
1977	Males	24.3	25.3	1.8
	Females	23.1	23.1	2.2
	Total	47.4	48.4	4.0

Sources: 1. Census of Iraq, 1965
2. Census of Iraq, 1977.

TABLE 2.16 **THE MAIN AGE GROUPS OF RURAL POPULATION, BASRAH**
REGION, 1965-1977

Year	Sex	Percentage of Age Groups		
		0-14	15-64	65 and over
1965	Males	24.8	22.7	2.5
	Females	22.8	24.1	3.0
	Total	47.6	46.8	5.6
1977	Males	24.8	27.6	2.0
	Females	22.9	20.2	2.2
	Total	47.7	47.8	4.2

Sources : 1. Census of Iraq, 1965
2. Census of Iraq, 1977

2. The adult group (15-64 years)

The proportion of this group has decreased in Basrah Region and City and in all other urban areas, because of the increase of the young group's proportion. In Tables 2.13, 2.14 and 2.15, it appears that the proportion of the adult group declined in Basrah Region from 52.0% in 1957 to 48.2% in 1977. However, it was still higher than in Iraq (46.8%), because of its appeal to Iraq's urban migrants.

In urban areas the proportion was 48.8% in 1965, and decreased to 48.4% in 1977 (in Iraq 48.6%), while in Basrah City it became 49.8% in 1977 after being 54.0% in 1957.

However, in the rural areas it rose from 46.8% in 1965 to 47.8% in 1977, higher than that in Iraq (43.6%). This phenomenon can be attributed to the migration factor, migration of the labour force to the work districts which are mainly concentrated in the rural areas in Al-Zubair Qadha. As shown in Table 2.11 and Figure 2.3, the proportion of the age group 20-29 years rose abnormally to reach 18.9% of the total rural population in 1977, compared with 14.9% in Iraq; the majority of them are males (12.1%).

3. The aged group (65 and over)

In general, the proportion of this group is very small compared with that of the other two groups. Despite its increasing numbers, it declined in Basrah Region from 4.3% in 1957 to 4.2% in 1977 approaching that of Iraq (4.0%). In urban areas it was 4.3% in 1965 and 4.0% (in Iraq 3.7%) in 1977. In rural areas the proportion of this group was 5.6% in 1965, and decreased to 4.2% (in Iraq 4.5%) at the

last census in 1977. In Basrah City the proportion had not changed (3.8%). The higher proportion of the aged group in rural population than in the urban population, can be attributed to the age-sex selective rural-urban migration.

In the light of the above facts, it can be said that migration is considered a main factor which has affected the age structure of population in Basrah Region and Iraq as a whole, and has caused some of the deviation from the 'normal' distribution of the age groups.

Generally, Basrah Region is among the regions with a dominant young group in their age structure : the high proportion of young groups continuously increases, compared with the very low and decreasing proportion of the aged group. This situation is similar to that in Iraq as a whole which, like most other countries in the Middle East, is a very young nation.⁽¹²⁾ On the other hand, the adult groups still represent a high proportion of the total population and on them all economic activities and the other two groups depend. In a population with an age structure like Basrah Region, we would expect high birth rates, low death rates, and rapid growth in future years, and this structure will inevitably affect the social and economic composition of the population.⁽¹³⁾

Economically Active Population

According to the 1977 census, of the three main population groups, the adult group (15-64 years), which is the economically active population, constituted 48.2%, 48.4%, 47.8%, 49.8% and 46.8% of total population in Basrah Region, urban areas, rural areas, Basrah City and Iraq as a whole respectively. Although the proportions are very similar in

all the foregoing cases, it is significant that the proportion of active population is less than that of the inactive population. It is a common phenomenon in developing countries to have a young rapidly growing population, while the active population tends to be small and there is heavy youth dependency because of the high proportion of children.⁽¹⁴⁾

However, a comparison between the proportions of population of working age (adults) and of the actual working population (including employed and unemployed)⁽¹⁵⁾ shows a very different situation. Table 2.18 shows that in 1977 the proportion of the economically active population (working population) was 25.2%, 23.6%, 31.3%, 24.5% and 26.1% of total population in each of Basrah Region, urban areas, rural areas, Basrah City and Iraq respectively. These proportions are much lower than the demographic proportion of population of working age. Moreover, Table 2.17, which shows distribution of economically active population in Basrah Region by 5-years Age-Sex Groups in 1977, shows that 7 years is the lower limit of working population instead of 15 years, and the proportion of working children in the 7-14 age group was 3.0% of the total working population. It also shows that the top limit is 65 years and over, although 64 is considered as the top limit of the population of working age, the proportion of working population in the 65 and over age group was 3.8%. In addition, the proportion of working females (2.6% of total population) is very much lower than that of females of working age (22.5% of total population), so the proportion of working females (10.2% of the total working population) is also very much lower than that of working males (89.8%) in Basrah Region in 1977; the same is true of Iraq as a whole.

TABLE 2.17 DISTRIBUTION OF ECONOMICALLY ACTIVE POPULATION BY AGE GROUPS AND SEX,
BASRAH REGION, 1977

Sex	Age Groups											Total			
	7-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59		60-64	65+	Un Known
Males	182	5,359	17,908	46,085	37,702	27,544	23,446	16,072	17,342	11,754	8,256	7,046	8,895	206	227,880
Females	55	2,124	2,250	4,493	4,206	3,293	2,236	1,690	1,839	1,342	892	610	758	26	25,817
Total No.	240	7,483	20,158	50,578	41,908	30,837	25,682	17,762	19,181	13,096	9,148	7,656	9,653	234	253,706
Total %	0.1	2.9	8.0	19.9	16.5	12.2	10.1	7.0	7.6	5.2	3.6	3.0	3.8	0.1	100.0

Source : Census of Iraq, 1977

**TABLE 2.18 THE ECONOMICALLY ACTIVE POPULATION BY SEX
AND DISTRICTS, 1977**

District	Economically Active Population			
	Males	Females	Total No.	Total %
Basrah Qadha	113,591	12,239	125,830	21.0
Shat Al-Arab Q.	13,843	2,504	16,347	22.6
Abu Al-Khasib Q.	15,503	1,537	17,040	22.2
Fao Q.	10,519	1,784	12,303	23.8
Qurna Q.	27,474	5,753	33,227	21.0
Al-Zubair Q.	46,959	2,000	48,959	39.1
Urban	170,777	17,301	188,578	23.6
Rural	57,112	8,016	65,128	31.3
Basrah City	99,671	11,209	110,880	21.5
Basrah Region	227,889	25,817	253,706	25.2
Iraq	2,589,561	544,378	3,133,939	26.1

Source : Census of Iraq, 1977

The size of the active population depends on demographic, social and economic factors.⁽¹⁶⁾ As already mentioned, a relatively large number of children and aged groups, not of legal working age, form a proportion of the working population, whereas a large number of the population of working age are unemployed because of disease, maintenance by family, or lack of a suitable job. The proportion of unemployed females is very high mainly because of the social traditions, although the effect of this factor has already begun to decline. Moreover, students of all levels, in addition to the males (18-20 years of age) who must join the army because of the conscription law, are excluded from the employed population. It is also a fact that a large number of rural females who share with men in agricultural labour, have not been registered as employed in the population censuses.

In studying the spatial distribution of economically active population, Table 2.18 shows that the highest proportion in 1977 was in Al-Zubair Qadha (39.1%) and rural areas (31.3%), while it was 23.6% of urban population. It was relatively low in each of Basrah City (24.5%), Basrah Qadha (24.0%), and Fao Qadha (23.8%). The proportion is low in Shatt Al-Arab Qadha (22.6%), Abu Al-Khasib Qadha (22.2%), and Qurna Qadha (21.0%).

As formerly mentioned, the migration factor is mainly responsible for the difference in these proportions. The significance of the relatively small proportion of the total which the active population form can best be appreciated in the light of the great economic developments which have taken place in Iraq since 1973, and, as a result, the labour

opportunities at the present time are higher than the size of the existing working population. Therefore, the Iraqi Government has opened the door to foreign immigrant labour forces in considerable numbers to achieve its objectives.

Migration

Migration, in Basrah Region and Iraq as a whole, is an essential factor affecting the distribution of population and their demographic characteristics. Unfortunately, nevertheless, the main problem facing the study of migration in this country is that the available data are scarce and unreliable. The population censuses, which are the main source for migration, use birth place as a method to define this feature in statistical terms. As well as not being an accurate method, the data collected in the last two censuses, 1965 and 1977, are not published, and are unobtainable, except for some scattered figures which are employed in this section.

Until the early 1950's, migration in Iraq was not a serious phenomenon, yet ever since massive rural-urban movement of population has taken place throughout the country. In the 1950's the increase of oil returns and establishment of the Development Board which contributed to increase the industrial and commercial activities in the major cities, created greater employment opportunities there than at any time before. In addition, this period witnessed significant improvement in the social services in urban areas. The developments influenced the labour movement and attracted considerable numbers of people from rural areas. However, rural inhabitants also move to urban centres to escape from poor conditions in

their villages. The insecurity and confusion created by the Agrarian Reform Law of 1958 merely strengthened the force of this movement. Since the revolution of 14th July, 1958, the increase of employment opportunities and the improvement of social services in urban areas, particularly the large cities, coupled with the continuing inadequate conditions in the rural areas, have all led to the persistence of the rural-to-urban migration. The largest migration is normally from the southern provinces of Iraq, particularly from Amara Province where the socio-economic standard of the cultivators is the lowest in the country, not least because of the unique and oppressive land tenure system which operated there until 1958, the impact of which is still felt. This is in complete contrast to several Middle Eastern countries where it is the increase in the supply of agricultural labour exceeding the increase in demand which has forced people to move from rural areas. (17)

The two largest urban districts in Iraq, Baghdad and Basrah, are prominent foci for the concentration of rural peoples with Baghdad attracting the majority. This is due to the concentration of the pull factors already mentioned, firstly in Baghdad and secondly in Basrah. In 1965, for instance, the number of rural migrants to the city of Baghdad was 410,183, and to Basrah City 45,080, about 64% and 7% of the total in the country. (18)

In Iraq permanent migration of complete families is the most important type of movement. It includes not only cultivators, although they are the majority, but also traders and shopkeepers, government officials, professionals, etc. All

of them usually already live in urban areas, and migrate to the larger cities, where the best employment opportunities and social amenities are to be found. It is clear, therefore, that the migration includes people of different occupations.

The rural migration, particularly from Amara, might be distinguished from that in some other developing countries, for it is not a floating migration with the migrants wandering from one town to another before settling down. In Brazil, for instance, the rural migrants move first to small cities and then to big ones, and in Delhi not less than 65% of the migrants have tried their luck in from six to fifteen or more other towns. Nor is a reverse migration practised as in most African countries south of the Sahara, where the migrant goes back to his village after a certain time, but it is a permanent migration. (19)

Migration Trends

In Basrah Region, as in Iraq as a whole, the movement of population, both temporary and permanent, has been continuous. According to the sphere of this movement, three types of migration can be identified in the Region: firstly, migration between the Region and the other regions of Iraq; secondly, internal migration within the Region; thirdly, foreign migration.

The first type of migration is the most important in terms of the number of permanent migrants, as already mentioned. According to the data available, which are partly shown in Table 2.19, the migrants from the other regions of

Iraq to Basrah Region, form a significant proportion of the total population in the Region. In 1947 the number of persons who lived in Basrah Region and were born in other regions of Iraq, was 56,076, in 1957 it was 81,071, in 1965 65,632⁽²⁰⁾, and in 1977 69,767,⁽²¹⁾ forming 16%, 16%, 10%, and 7% respectively of the total population of the Region. These figures show that migration reached its peak in the 1957 census. This is not only because of the normal reasons for migration in rural areas and the attractiveness of urban areas, but it also followed the failure of the 1952 and 1955 measures of the government to solve the acute problems of the land tenure system. It was also a result of the catastrophic floods in the country in 1954, when all the winter crops were damaged and the high water which lasted throughout the summer prevented the sowing of summer crops. As a result the normal exodus of cultivators intensified because they lost confidence in both the land reform measures and their cultivated crops.⁽²²⁾

Table 2.19 shows that in Basrah Region the migrants from the southern regions of Iraq are the majority among the total migrants from all other regions. In 1947, 71% of the people who lived in Basrah Region and were born in other regions, were born in Amara and Thiqar regions, which are, with Basrah Region, the southern regions. In 1957, the proportion reached 76%. Furthermore, in 1947 and 1957, 50% and 53% of the people who lived in the Region and were born in other regions, were born in Amara Region. This can be attributed to the proximity of Basrah Region to these two regions, as well as to the reasons which have been discussed before.

TABLE 2.19 POPULATION OF BASRAH REGION BY PLACE OF BIRTH
(IRAQIS)

Place of Birth (Muhafada)	1947		1957	
	No.	%	No.	%
Basrah	296,779	84.1	314,511	83.6
Baghdad	7,799	2.2	7,322	1.8
Mosul	1,848	0.5	2,953	0.6
Al-Taamin	493	0.1	735	0.2
Arbil	195	0.1	163	0.0
Sulaimaniyah	231	0.1	328	0.1
Diyala	599	0.2	671	0.1
Al-Anbar	232	0.1	517	0.1
Wasit	1,154	0.3	1,133	0.2
Missan	28,446	8.1	42,649	8.6
Babylon	565	0.2	815	0.2
Kerbela	1,128	0.3	1,343	0.3
Al-Qadisiya	1,455	0.4	2,118	0.4
Thiqar	11,402	3.2	19,092	3.8
Place Unknown	529	0.1	1,289	0.3
Total	352,855	100.0	495,582	100.0

- Source : 1. Ministry of Social Affairs, Directorate General of Population, the 1947 Census, Baghdad, 1954, Vol.3, p.19.
2. Ministry of Interior, Directorate General of Population, the 1957 Census, Basrah and Amara Lawias, Baghdad, 1962, T.B 15, pp.113-115.

However, at the same time, there is a movement of population from Basrah Region to the other regions of Iraq, although this type of movement is less important than the former in terms of number of migrants. In 1965, for instance, there were 28,900 persons in Iraq who lived in the different regions of the country, and were born in Basrah Region, (23) 49% of them lived in Baghdad Region, while the proportions of the remainder in all other regions ranged from 0.05% to 9.0% of their total. (24)

The emigration from Basrah Region to other regions in Iraq, can be attributed to several factors. A high proportion of the migrants work in the army because of the conscription law in Iraq, and because of the high wages and other special privileges of the army. Most of them leave their families in their original home because of the nature of this kind of work, and the supportive social structure at home. Some other people who work in the government offices are forced to emigrate from Basrah Region because of administrative requirements. Other people want to live in other regions for family reasons, or to benefit from the relatively greater facilities available in Baghdad City. The latter is an important reason for the highest proportion of migrants from Basrah Region moving to that city.

Internal migration within Basrah Region is important because it leads to redistribution of population throughout the Region. Unfortunately, the data about this type of migration are not available. However, it can certainly be said that the rural-to-urban migration in the Region, as in the country, is a significant feature. The main reason for

the great growth of urban areas is attributable to this feature. Basrah City, of course, is the main urban centre in Basrah Region to attract people from the whole Region, both rural and urban areas, as this city is richer in terms of employment opportunities and social services than any other settlement in the Region. According to the data available, in 1977 the total number of migrants from the Region to Basrah City was 37,046, of which 25% were from rural areas and the remainder from urban areas. (25) These figures confirm the fact that a large number of the people who live in the cities of the Region wish to live in Basrah City for the above reasons, particularly because of the facilities available in the city.

Moreover, the new economic projects which have been set up recently throughout the Region, which will be discussed in the next chapters, attract a large number of people from different places in the Region, even from Basrah City, to work and often to live near the project. These include new ports, industrial, oil, agricultural and military establishments. Al-Zubair Qadha is the most important in this field, where there is a high proportion of these establishments. Consequently, this Qadha has attracted a large number of migrants from Basrah Region itself, from other regions of Iraq, and from abroad. This migration has greatly increased the population in this Qadha as shown in the earlier section of this chapter. According to the data available, the 1977 census shows that the number of migrants to Basrah Region from the other regions of Iraq because of work, was 51,416, distributed throughout the Region, 10,992 of that total migrated from Thiqar Region,

33.7% of them to live in Basrah City, and 42.7% in Zubair City; 15,690 of that total migrated from Missan Region of whom 74.4% lived in Basrah City; and 10,000 migrants came from Baghdad Region, 45% of whom lived in Basrah City and 43% in Zubair City. (26)

Foreign immigration to Iraq has recently become a significant feature. Since 1973, when the oil returns have greatly increased, ambitious and comprehensive development plans have been achieved throughout the country, and the most important industrial and oil establishments have been set up in Basrah Region. All of these need a great number of employees, and because the Iraqi population is not able to supply the whole demand, foreign workers, have become a significant resource to supply what remains. Egyptians firstly and Indians and Pakistanis secondly, form the majority of the foreign employees in Iraq. Unfortunately, however, the data about this type of migration in Iraq is not available, but despite that, it becomes immediately apparent to the casual observer through his observation of these people in streets, hotels, restaurants, coffee shops, and other public places, that the foreign worker is now an important aspect of Iraqi life. Such places are crowded with them, so that some places, particularly in large cities such as Baghdad and Basrah, are completely occupied by foreigners. Almost all of them are males who come to Iraq without their families to work for a certain period to earn a suitable amount and go back home, in spite of the Iraqi laws which allow Arab workers to stay in the country as Iraqis, although a few Arabs prefer to stay with their families in Iraq.

Influences of Migration

In Basrah Region, as in Iraq as a whole, migration has created many features. This movement of population has brought about important changes in the spatial distribution of population in terms of size. Migration, particularly rural-to-urban which involves essentially the economically active population, has greatly modified the occupational structure of the areas of migration. Consequently, the proportion of agricultural labour has greatly declined, while there has been a significant increase in the proportion of the population employed in urban activities, as a result of which crop production has greatly declined and vast agricultural lands have been abandoned.

Migration is one of the major factors contributing to the rapid growth of urban centres, particularly Basrah City. However, as a result of migration many problems have appeared which affect centres such as these. The migrants place a strain on accommodation, food and goods sold, and public services. They compete with other workers for different jobs, particularly lower paid ones. Other problems, such as those related to the health and security of the rest of the population in urban areas, were serious, particularly over the period before the 1970's, when large numbers of rural migrants arrived in the Region, especially in Basrah City. They brought with them the prevailing problems of their own areas, and the city, like the whole Region, had only limited resources to deal with them.

Thus, by the start of the 1980's, because of the foreign immigration to Iraq, greater pressure has been placed

on all the aspects of life already mentioned, and the local population, particularly in Basrah City suffer from the competition from foreigners.

Finally, as migration is sex and age-selective the proportion of the reproductive section of the population, particularly the males, is higher in areas of in-migration than in Iraq or Basrah Region as a whole, and lower in areas losing population.

Conclusion

The social and economic developments which have taken place in Iraq in the last thirty years, have greatly affected the demographic structure and distribution of population in the whole country. Because of the great economic importance of Basrah Region in Iraq, it has been one of the most important in-migration regions in the country, thus, migration, both internal and foreign, has been the main factor affecting population features in the Region. Basrah Qadha, particularly Basrah City, and Al-Zubair Qadha are the most important in-migration areas in the Region, because of their good employment opportunities, and the good social services in Basrah City.

Consequently, although the total population in both Iraq and Basrah Region has continuously increased since 1947, the average annual population growth rate in the Region has been higher than the national rate. Natural increase, of course, is the main reason for population growth in Iraq as a whole, and it is, in addition to immigration, an important factor in Basrah Region too.

The proportion of urban population in both Iraq and Basrah Region has substantially increased since 1947, while the proportion of rural population has decreased over that period. This feature can be attributed to massive rural-to-urban migration together with a high rate of natural increase in urban areas.

The sex ratio is one of the demographic features which has been greatly affected by migration in Iraq, particularly Basrah Region. It increased substantially in the 1970's because of male -selective foreign immigration; in 1977 it was 109.0 in the Region and 106.3 in Iraq as a whole, it was higher in Basrah Qadha (107,5) and Al-Zubair Qadha (158.9) than in the other Qadhas in the Region. Although, because of the social conditions of the community in Iraq, the economically active population still consists mainly of males, nevertheless the proportion of employed females has increased rapidly in recent years.

In age structure, Basrah Region is among the regions dominated by the young : the young groups represent a high proportion of the total population, particularly the group under 10 years of age, which continuously increases compared with the very low and decreasing proportion of the aged group. This situation is similar to that of Iraq as a whole which, like most other countries in the Middle East, is young both as a nation and as a population.

In the 1977 census, the proportion of the population of working age (15-64 years of age) in Iraq and Basrah Region was 46.8% and 48.2% respectively of the total population.

However, the proportion of the actual working population (including employed and unemployed) was only 26.1% and 23.2% of the total population in Iraq and Basrah Region; this included large numbers of children and elderly, while it excluded a very large number of the population of working age for reasons previously discussed. Accordingly, the size of the working population is very small compared with the great employment opportunities available in Basrah Region and Iraq as a whole.

Basrah City, being the second largest city in Iraq, and the primate city in both Basrah Region and southern Iraq, attracts migrants from the whole country, particularly from the neighbouring regions in southern Iraq.

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CHAPTER THREE

SETTLEMENTS IN BASRAH REGION

In the first chapter the physical characteristics of the region were discussed. The aims of the present chapter will be initially to show how population is distributed through the region, and to analyse the relationships between that distribution and those physical characteristics. The second part will concentrate on the settlements themselves, including a study of their size and spacing, their functional classification, and a consideration of how they relate to established theories of settlement distribution and hierarchies.

Population Density

"Men and land are the ultimate elements in the life of human society so that the number of people in proportion to the amount of land is a fundamental consideration in population study. The concept of density, or the relationship between people and land, is usually expressed as a simple arithmetic ratio which divides total population by total area. This common expression of density, while it is not without some value geographically, in reality provides only the most superficial representation of the real pressure of population upon the resource base. Such a simple ratio is unsatisfactory because it expresses a quantitative relationship between two elements which in themselves are highly inconstant. The numerator, or total population, represents men of greatly contrasting cultures and stages of economic development whose demands upon the physical earth stand in great contrast. The denominator of the ratio expressing units of area fails to take into consideration the variable capacities of different

environments for supporting human life and satisfying human wants".⁽¹⁾ All these facts can be noted clearly within Basrah Region, where there are different societies graduating from a primitive population in the marshlands to an urban population in a modern large city. Furthermore, the Region includes environments of varying physical characteristics, as described in the first chapter, and variable economic capacities which will be mentioned later. The arithmetic ratio of this Region (total population 1,008,626 and total area 18,022 sq.kms) is about 55.9 persons per square km. But this figure will be seen to be without any real value when we look at the actual distribution of population through the Region (see Fig. 3.1), where there is a very large variation ranging from uninhabited areas to very crowded areas.

A somewhat more refined form of density is expressed by the ratio ; total population ; arable area, called physiological density. Here there is eliminated from the denominator all land not fit for tillage. In Basrah Region the total area included in this category is about 4,800 square km., or some 27% of the total area of the Region, showing a ratio of 210 persons per square km, and of one person per 5.3 donum.* Of course it errs in eliminating all productive non-arable land. It likewise errs in continuing to evaluate all arable lands as having the same productivity in spite of their different climates, soils, and drainage characteristics, and rating populations as having the same capacities no matter what their cultural background or stage of economic development

* One donum = one meshara = one quarter of a hectare.

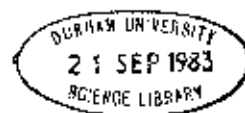


TABLE 3.1 POPULATION DISTRIBUTION BY PHYSICAL UNITS
IN BASRAH REGION, 1977

District	Area sq. km.	%	Population*	%	Dens- ity
1 River Levees	2,322	12.9	838,074	83.1	360.0
2 Seasonal Marshes	2,400	13.3	31,754	3.2	13.2
3 Perennial Marshes	1,500	8.3	13,587	1.3	9.1
4 Al-Zubair	11,800	65.5	125,211	12.4	10.6
Basrah Region	18,022	100	1,008,626	100	55.9

* The total population of settlements was calculated from the 1977 Census (Unpublished data).

Source : Fieldwork Survey.

and kind of activity.⁽²⁾ Furthermore, not all the population of the Region are farmers or rely on agriculture for their income. In fact, the majority of the population are not farmers, although a high proportion of them still live in rural areas : the officially defined agricultural population was 18,306 in 1977, about 7.5% of the economically active population, and about 1.9% of the total population in the Region. However, even when we have taken into consideration the agricultural density, expressed by the ratio agricultural populations/arable land (about 4 per square km.), this type of density will still not be a realistic index as long as there are variations in the distribution of agricultural populations and arable areas as well as the different qualities of environment and men. "Obviously it can serve as an index of general population density only in those regions where agricultural population forms a very large proportion of the total."⁽³⁾

"But even these more specialized ratios still fall short of being able to express the man-land ratio in its fullest meaning, or what is called the general economic density of population. The numerator of such a ratio should involve not only numbers of men but also their socio-economic qualities, including stage of technological advancement. The denominator should denote not just total area, or even cultivated area, but rather the sum total of the natural resource equipment, so that it essays to express the capacity of a region's natural environment to support human life at a particular stage of development."⁽⁴⁾ In addition to the deficiencies in data which should be available for the calculation of these denominator and numerator, "the concept of density has been extended beyond the scope of geography. Indeed, the density

concept has passed from the notion of intensity of occupation of space to one of density of standards of living. Cause and effect relationships are consequently confused."(5)

In the light of the above facts, we have avoided relying on the concept of simple population density as the man-land ratio. However, when this type of concept of population density has been employed in this research, it is simply as a method to illustrate the patterns of population distribution in space.

Population Distribution

The conditions of Basrah Region are such that a suitable method of showing the realistic distribution of the Region's population is the geographical distribution of the settlements by size (see Fig.3.1) since nearly all people live in nucleated settlements, whether urban or rural.

It can be noted in Figure 3.1, that the population distribution of the Region forms certain patterns which differ from one area to another. From a comparison between this figure and the topographic map (Fig.1.4), a clear relationship appears between the distribution of those patterns and topographic units, whereas there is no relationship between population distribution and administrative units of the Region which are very different in their sizes and conditions. Therefore, the topographic units can be considered as units of the population distribution, which will now be discussed in those terms.

1. River Levees

This area is estimated to be about 2,322 sq. km., 12.9% of the total area of the Region. Its population numbered 838,074 in 1977, forming about 83.1% of the total population, with a density of 360.9 per sq. km. living in 236 settlements which form 68% of the total (see Table 3.2). These figures are considered a real index of the concentration of the majority of the Region's population in this relatively small area. The distribution pattern is a ribbon, following the length of the Tigris, Euphrates, and Shatt Al-Arab Rivers on both their banks, within a distance which does not extend more than 5 km. from the river course, although most of the settlements are considerably closer to the rivers than that.

This concentration on the levees is mainly attributed to the physical conditions mentioned in the first chapter, particularly topography and soils. The river levees are the highest areas in the alluvial plain of the Region, while the remainder are low lands occupied by seasonal and perennial marshes affected by the flood waters. Thus the river levees are the best area for settlements. Another advantage of the area are the dams which have been built around the river levees to protect them from the high flood risk. The soils, as a result of the high level of river levees, are relatively less saline than the rest of the plain. Because of the rivers, water is available throughout the year for different uses, and the rivers facilitate transportation. From the earliest settlements up to the present time, the river levees

TABLE 3.2 DISTRIBUTION OF SETTLEMENTS BY PHYSICAL UNITS
OF BASRAH REGION, 1977

	District	Number of settlements	%	Population*	%
1	River Levees	236	68	838,074	83.1
2	Seasonal Marshes	52	15	31,754	3.2
3	Perennial Marshes	30	8.6	13,587	1.3
4	Al-Zubair	29	8.4	125,211	12.4
	Basrah Region	347	100	1,008,626	100

* The total population of settlements was calculated from the 1977 Census(Unpublished data).

Source : Fieldwork Survey.

have continued to attract population whether urban or rural, with agricultural and other activities.

As noted in Figure 3.1, two main areas of population concentration exist in the river levees. Firstly, Basrah City and surrounding areas. Basrah City is a main population attraction (see Chapter Two for reasons). Its surrounding areas are agriculturally important in the Region, particularly in date palms and vegetables. In addition, many modern industrial establishments have been built in or close to the area. Secondly, the area surrounding Qurna City which extends westward to join with the area surrounding Medaina and Huwear cities. These form the second main agricultural area, particularly in date palms, which is a main cause of the high density of population. Moreover, river transport is available by several important courses, including the Tigris and the old course of the Euphrates. Therefore, these three cities have become main central places for the population of the marshes. (see Figs. 1.4 & 3.1).

2. Al-Zubair Area

This area has the second largest population of the Region, 125,211 in 1977, 12.4% of the total population. However, its population density is very low (about 10.6 per square km.) compared with that of the river levees, although it has an area of about 11,800 square km., about 65.5% of the total area of the Region. The cause of this low density can be attributed to the difficult desert conditions, poor soils, absence of surface water resources, and the problems of groundwater, (all mentioned in chapter 1). In the light

of the above reasons we can easily understand why it had the lowest population before and in the 1965 census when most people depended upon physical resources for their livelihood, whether agricultural or pastoral. Even Al-Zubair City, the sole urban area in this zone, depended upon groundwater to supply its population with their requirements of water until 1939 when it was supplied with fresh water piped from the Shatt Al-Arab river. Accordingly, the ground waters are the essential factor which have controlled the distribution of the whole population in the past and affect the agricultural and pastoral population in the present. The soils form the second factor affecting the distribution of agricultural population overall.

The distribution of the non-agricultural and pastoral population is determined by distribution of ports, modern industries, oil fields, or such planned institutions as military establishments which have been built recently by the Iraqi government.

The settlements, which numbered 29 in 1977, are irregularly distributed throughout Al-Zubair area, with no clear pattern of spatial distribution, unlike those that are found in the river levees (see Fig. 3.1).

3. Seasonal Marshlands

The marshlands form a distinct environment. It is considered one of the closed environments of the world because of its difficult local conditions. As a result, it is unattractive to population and its original inhabitants have dwelt here for hundreds of years, and adapted their life to the local conditions.

Accordingly, it should be noted that in spite of the large area of the seasonal marshes in the Region, about 2,400 square km. or 13.3% of the total area (more than that of the river levees), the total population was only 31,751 in 1977, or about 3.2% of the total population of the Region. The average density is about 13.2 persons per square km. The whole population live in 52 settlements which form 15% of the total settlements of the Region.

We can see in Figure 3.1 that the distribution pattern of population of the seasonal marshlands is different from those of the first two areas. The settlements are distributed at the edges of the perennial marshes to enable the population and their animals to benefit from the perennial water and the associated natural resources such as vegetation, fish and wild birds, particularly during the low water season. The total population also varies from one marsh to another. The Hammar marsh has the highest proportion (59.5% of the total population of the seasonal marshes in the Region), followed by Zijry marsh (32.7%) and Al-Zuwaib (7.8%). This variation can be attributed to different local conditions of these three marshes. The Hammar marsh is considered the best one because of its location near Basrah City, which has the market, where marsh products can be sold and essential items bought. Therefore, nearly all the population of these marshes market their products in this city. In addition, Hammar is close to the main roads, the railways, and main settlements in the river levees; also the seasonal marshes in this area are relatively narrow compared with the other ones, which enables the population to travel easily. Another reason for its

popularity is that this marsh is an open one with less dense natural vegetation than the others and most of its area is a lake covered by water throughout the year. Zijry marsh is the next most suitable marsh for habitation, and Al-Suwaib the least suitable. Consequently, in 1977 the population density in the Hammar marsh was about 35 persons per square km., 21 in Zijry marsh, while it was only 2 in Al-Suwaib marsh.

4. Perennial Marshlands

This area has the lowest density of population (9.1 per square km.) the population numbering 13,567 in 1977, or about 1.3% of the total population of the Region, in an area estimated at about 1,500 square km., or 8.3% of the total area of the Region. The number of settlements was 30 (8.6% of the total).

This situation is due to the environmental conditions of perennial marshlands which are much more difficult and isolated than those of seasonal marshlands. Also the population distribution is different from one marsh to another. We can see in Figure 3.1, that the majority of the population live in the Hammar marsh, and a small number in the Zijry, while there is no permanent settlement in the Al-Suwaib marsh. We also see in this figure that settlements are at the southern extreme of the Zijry marsh, whereas they are inside the Hammar one. There are many islands in the Hammar lake which are suitable for settlement and different economic activities, such as agriculture; also reeds, which obstruct settlement, are absent in most of this lake. These factors,

as well as those already mentioned, have contributed to the larger population of this marsh compared with the others.

SETTLEMENTS

It is now appropriate to discuss and to analyse the size and spacing of settlements of Basrah Region.*

There were 347 separate settlements in the Region in 1977, with populations ranging from 452,102 (Basrah City) to only 7. Nine types of settlements based on population size may be identified in the Region, in the light of the actual settlements size in the study area (see Table 3.3). This classification is similar to the United Nation's classification.**

From Table 3.3, Figures 3.1 and 3.2, we can make the following observations.

1. The level of settlement size is low, with the exception of Basrah City. The second largest city, Zubair, had a population of 66,539 in 1977, while all the remaining settlements were below 26,000. Moreover, it is significant that almost 20% of the total population live in the 289 smallest settlements (under 2000 people), which constitute 83% of the total number of settlements, while the population of Basrah City alone formed almost 45% of the total population. The remainder of the population (29%) were found

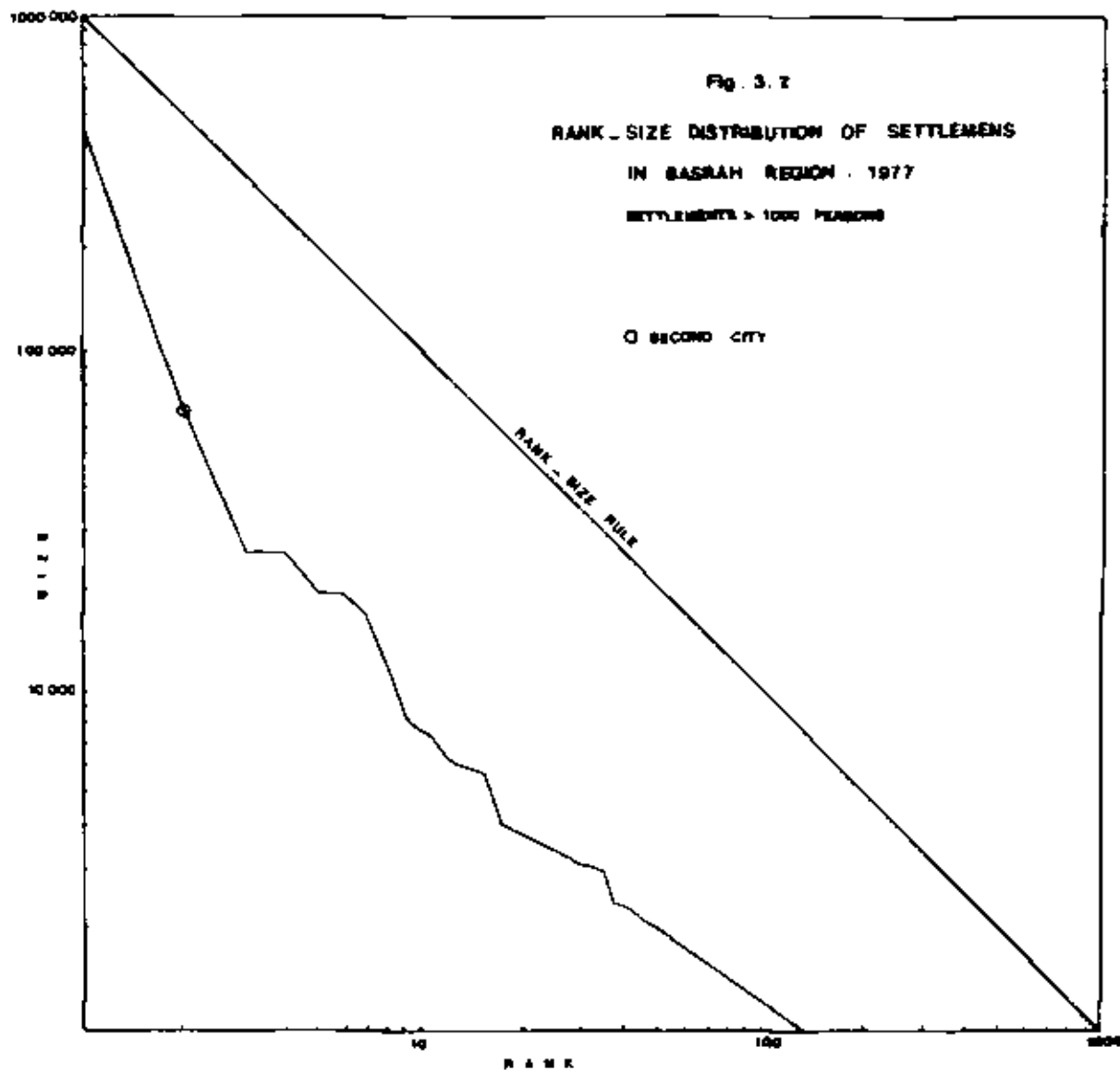
* Here the size means number of population of the settlement.

** United Nations have recommended that settlements should be classed according to the following sizes : (1) 500,000 inhabitants and over; (2) 100,000 to 500,000; (3) 25,000 to 100,000; (4) 10,000 to 25,000; (5) 5,000 to 10,000; (6) 2,000 to 5,000; (7) 1,000 to 2,000; (8) 500 to 1,000; (9) less than 500; (10) populations not in identifiable clusters
See : Clarke, J.I. op.cit., p.48.

TABLE 3.3 DISTRIBUTION OF SETTLEMENTS BY POPULATION SIZE
IN BASRAH REGION, 1977

Rank	Size classes	Number of settlements	%	Population	%
1	100,000+	1	0.3	152,102	14.8
2	50,001-100,000	1	0.3	66,509	6.6
3	20,001-50,000	2	0.6	51,325	5.1
4	10,001-20,000	4	1.2	66,492	6.6
5	5,001-10,000	8	2.3	53,256	5.3
6	2,001-5,000	12	12.1	121,183	12.0
7	1,001-2,000	73	21.0	102,310	10.2
8	500-1,000	90	25.9	65,953	6.5
9	Under 500	126	36.3	29,416	2.9
	Total	347	100.0	1,008,626	100.0

Source: Calculated from the Census of Iraq, 1977 (unpublished data).



in the 56 (24%) settlements with between 2,000 and 26,000 people. On the other hand, the smallest group, which contains 126 settlements (35.3%) or about 2.9% of the total population, has 97, 53 and 26 settlements below the level of 300, 200 and 100 persons respectively.

In comparison, the size distribution pattern of settlements in Basrah Region is similar to that of all Iraqi regions, which have a primate city dominating a large number of small towns and villages, settlements of intermediate size being generally absent. This phenomenon can be attributed to the fact that real urban growth has happened recently, since the Second World War, whereas the rural life which was dominant in Iraq does not permit settlements to be large, unlike those in industrialized countries. A similar pattern can be seen in a large number of the Third World countries. The studies which were done by Costello and Balasundarampillai of Kasban Region in Iran and of northern Srilanka respectively are applied examples to confirm this fact. (6)

2. It should be noted in Figure 3.1, that a high proportion of the smallest settlements are found in the marshlands. the environment is not conducive to large settlements and the average size of settlements is only 553 persons.* But even in the river levees, which have the best conditions for settlement, the largest settlements are the cities such as Basrah, Fao, Hartha, Shatt Al-Arab (Tammara), Abu Al-Khassib, and Qurna, while the population size of the remainder does

* There are no urban settlements in the marshlands.

not exceed 8,000. The average size of non-urban settlements is 2,573 persons. This pattern of size distribution can be attributed to many problems concerned with agriculture and socio-social conditions as will be seen later. In the Zubair area, as a result of the local physical conditions, all settlements are small except for a very few which have grown rapidly in recent years for reasons already mentioned, including the cities of Zubair and Um-Qassir. The average size of non-urban settlements is 1,383 persons.

3. Figure 3.1 indicates that there is no direct relation between size of settlements and population density. We can see that the areas with a relatively high density contain a large number of the smallest settlements (population under 500), while large settlements are found in those areas of low density such as in the Zubair area and Fao. But even the size of Basrah City is not due to the high density of the area surrounding it which contains another two cities (Al-Hartha and Shatt Al-Arab with population of 19,028 and 25,697 respectively). In fact, the existence of Basrah City is considered the main reason why the highest density has occurred in this place itself. Moreover, the area with the second highest density, in the north of the Region contains no settlements of more than 10,000, except for Qurna (11,511).

4. The frequency distribution of settlement sizes in the Region, which reflects the relationship between the size and number of settlements (see Table 3.3), shows that the number rapidly decreases with increasing size. The decrease in number of settlements of all size classes is as follows : 126, 90, 73, 42, 8, 4, 2, 1, 1. It should be noted that there

is an abrupt decrease in the number of settlements above the class of 2,001 - 5,000, so that the number of settlements of more than 5,000 is only 16.

Although a correlation has been found between the number and size of settlements in the Region, where the number falls rapidly with increasing size, but, as Losch has said, we do not know the law governing this decline.⁽⁷⁾ Therefore, this distribution does not conform to Christaller's idea, in which he has endeavoured to explain the size and distribution of most settlements in southern Germany on the assumption that k is 3 or, in a few cases, also 7.⁽⁸⁾

5. The diagram in Figure 3.2 shows a rank-size distribution, that is, all settlements with populations of more than 1,000 have been ranked in decreasing order of size and plotted according to Zipf's theory.⁽⁹⁾

In comparison with the distribution curve of Zipf's rank-size rule which is approximately a straight line, we see our curve is very different. This means that the rank-size relationship in the Region does not follow the formula below, as Zipf has stated⁽¹⁰⁾ :

$$R \times S = C^*$$

The rank-size distribution in the Region is also not similar to that revealed by Stewart in Sweden and Denmark,⁽¹¹⁾ and very different from that of Berry in the United States.⁽¹²⁾ It should be pointed out that the scale of the study area is different in these studies and the present one, which is one of the reasons for the variations in this distribution.

* The rank (R) of each settlement, when multiplied by its size (S) remains constant (C).

However, on the other hand, it should be said that the distribution of settlements by size in the Region displays primacy, the concept of the primate city which was introduced by Mark Jefferson. (13) Primacy is present when the largest city is several times the population of the one that is second in rank. Basrah City, the largest one, is seven times as large as the Region's second city, Zubair, which in turn is more than twice the size of the next ranking cities (see Fig. 3.2).

Size and Spacing of Settlements

Studies have been made to deal with the relationships between size and spacing of settlements. (14) Some of them have empirically concluded not only that the distance separating settlements increases with their size, but also that there is a typical distance for every size. (15)

It should be noted from Figure 3.1 that settlements in Basrah Region are irregularly distributed, and there is no absolute spatial rule or system controlling their distribution, in contrast with those which have been exposed by a number of the above works in other places in the world. We can not find a statistical relation between size and spacing of settlements. In places the distance separating the larger settlement classes is less than that of the smaller one. The distance also differs within the size classes themselves from one place to another. Although the cities seem to be more widely space, Hartha and Shatt Al-Arab (classes 6 and 3 respectively) lie adjacent to Basrah City (see Fig. 3.1, Table 3.3A and Table 3.3B).

TABLE 3.3A THE AVERAGE DISTANCE BETWEEN SETTLEMENTS IN EACH OF SIZE CLASSES

Size classes	Rank	No. of Settlements	Average distance (km)	T test
20,000 - 50,000	3	2	85.00	-
10,000 - 20,000	4	4	47.50	\bar{t} 22.09
5,000 - 10,000	5	8	7.71	\bar{t} 2.98
2,000 - 5,000	6	42	8.63	\bar{t} 1.74
1,000 - 2,000	7	73	7.00	\bar{t} 1.12
500 - 1,000	8	90	5.59	\bar{t} 1.05
Under 500	9	126	6.06	\bar{t} 0.89

TABLE 3.3B THE AVERAGE DISTANCE BETWEEN CITIES IN EACH OF SIZE CLASSES

Size classes	Rank	No. of Cities	Average distance (km)	T test
20,000 - 50,000	3	2	85.00	-
10,000 - 20,000	4	4	47.50	\bar{t} 22.09
5,000 - 10,000	5	2	160.00	-
2,000 - 5,000	6	5	54.38	\bar{t} 20.65

On the other hand it should be noted that the relation between the spacing of settlements and the density of population is inverse. While settlements are more closely spaced in the areas with a high density, they are more widely spaced in those with a low one, regardless of the size of settlements. This is similar to the results which have been obtained by Losch in Iowa Missouri. (16)

In fact, the size of settlements and their spacing in the Region have been determined by various local factors. Among these are the nature of relief, water resources, soil productivity, type of agriculture, tenure of lands, transportation routes, geographical location, administrative organization, social structure, history of development, and extent of industrialization. (17)

Functional Classification of Settlements

If settlements were classified by size in the former section, it is necessary to classify them on the basis of function in the present one. The purpose of the functional classification of settlements is to identify the spatial regularities in the distribution and structure of settlement functions. It also aims to identify the activity of greatest importance in each settlement in the Region, recognizing that each one has a multifunctional character or single function, whether there is a real or reputed dominance of one or another function within the settlement itself. (18) All of these indices would contribute towards assessing the level of importance of settlements within the functional structure of the Region on the one hand, and the influence of the function on settlements growth on the other.

At the outset, a distinction should be made between qualitative and quantitative methods, to separate those approaches which use precise numerical data from those which do not. The basic weakness of the qualitative classification approach is encountered when one tries to decide, from general observation, whether a particular town belongs in one category or another; but in all fairness it should be noted that when precise data are unavailable, there is simply no alternative to this approach. Studies employing quantitative standards of classification are far more numerous.⁽¹⁹⁾ On the assumption that the occupational or industrial structure of a town's labour force reflects those economic, political, and social activities in which the residents of the town engage, industrial employment or occupational data have been manipulated in various ways to establish groups of towns with similar functional specializations. Specialization implies an amount or proportion of the labour force in a given industrial category which exceeds by a certain margin some predetermined minimum level.⁽²⁰⁾

Unfortunately, the statistical data concerned with the labour force related to settlements are unavailable. The data available are just related to administrative units which are not considered useful for functional classification of settlements. Accordingly, the quantitative methods would be impossible to employ here. But, at the same time, we have avoided the use of the first methods because of their weakness.

Nevertheless, as long as this classification is considered necessary for the present study, the fieldwork has become the essential data source on which we have classified

settlements in the Region into five classes, dependent upon the above assumption. These classes are :

1. Urban Settlements.
2. Residential Settlements.
3. Industrial Worker Settlements.
4. Agricultural Settlements.
5. Animal Breeding Settlements.

Table 3.4 shows the functional classification of settlements according to the above classes, including the number of settlements and total population of each one, compared with that of the Region as a whole. The distribution of functional classification of settlements is shown on Figure 3.3. These five functional classes will now be considered in detail.

Urban Settlements

Unlike the rural-urban continuum which is a well-known phenomenon in the industrial countries, particularly in the west, a clear break can be noted between these two features in Basrah Region and Iraq as a whole. It is not difficult to distinguish urban from rural areas, dependent solely upon the landscape, according to the special characteristics of Iraqi cities and villages structure. The gap between them is still large in spite of some changes and developments which have happened throughout rural areas since the end of the 1960's. The important element of the city structure is the market area which does not exist in the ruralscape; also the cityscape includes various service establishments of both private and public sectors. In addition, the other land-uses of cities

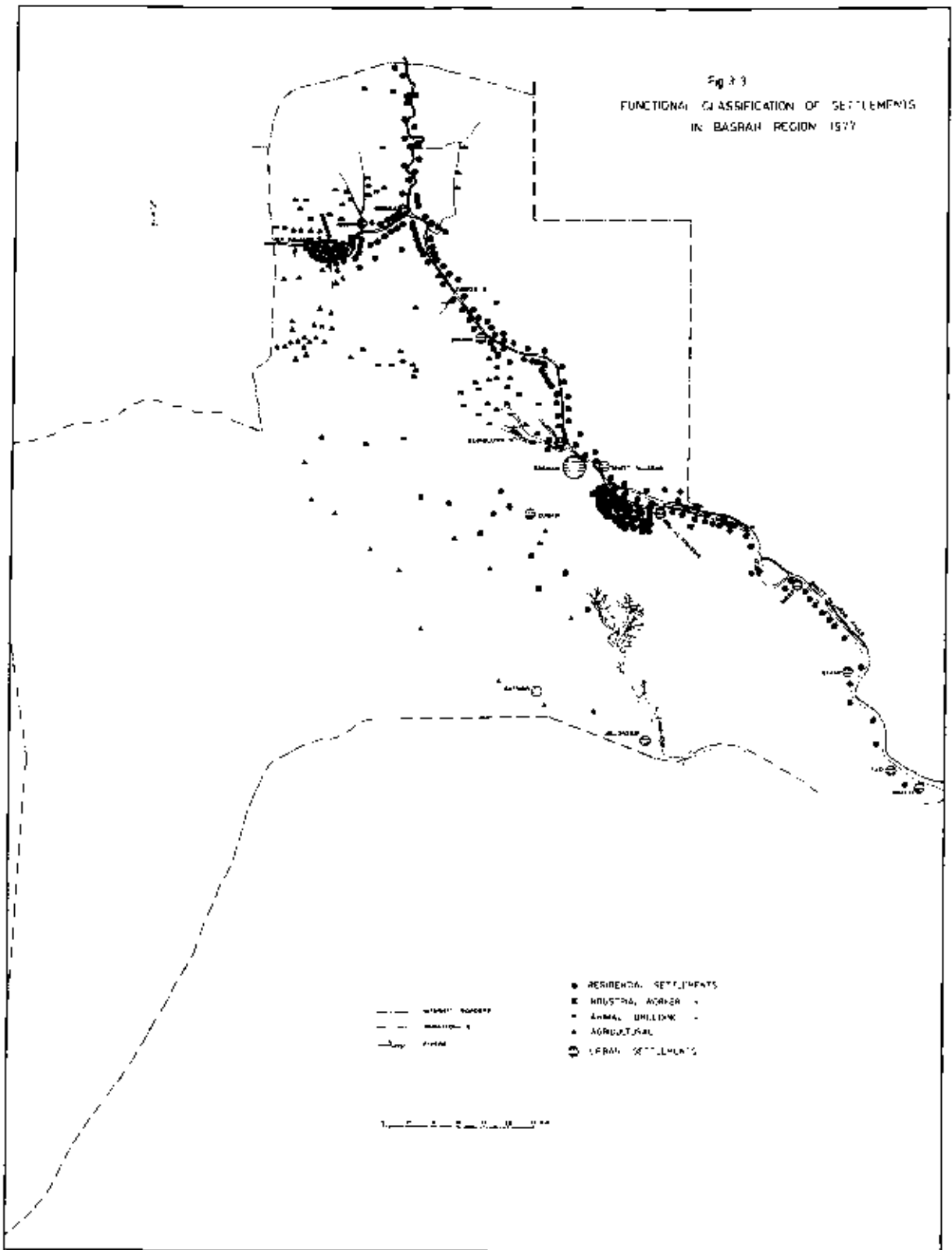
TABLE 3.4 FUNCTIONAL CLASSIFICATION OF SETTLEMENTS,
BASRAH REGION, 1977

Functional Classes	Number of Settlements	%	Total Population*	%
1 Urban Settlements	15	4.3	665,700	66.0
2 Residential Settlements	196	56.5	239,357	23.7
3 Industrial Worker Settlements	10	2.9	29,210	2.9
4 Agricultural Settlements	69	19.9	36,589	3.6
5 Animal Breeding Settlements	57	16.4	37,770	3.8
Basrah Region	347	100	1,008,626	100

* The total population of settlements was calculated from the 1977 Census.

Source : Fieldwork Survey.

Fig 33
FUNCTIONAL CLASSIFICATION OF SETTLEMENTS
IN BASRAH REGION 1977



such as streets and housing, are more regular and developed than those of villages. The cities are considered as central places for rural areas for which they provide goods and services, although the level and sphere of influence of this central function are relative to the size, importance, and location of cities, and this will be discussed later. Moreover, all the cities are administrative centres. There is a hierarchical structure of these centres in Iraq, ranging from the lowest level named Nahia up to Qadha, Muhafadha, and the capital, Baghdad City. A high proportion of the urban population is employed in the services sector and trade activities within their own cities.

On the basis of the above indices we have attempted to distinguish urban from rural areas or cities from villages. Accordingly, fifteen cities have been identified in the Region, with a total population of 665,700, or about 66% of the Region's population (see Table 3.4). Obviously, these classification's results are different from those obtained by the 1977 census of Iraq, previously mentioned in Chapter 2. We believe that the criteria or base, used with this area, which were employed by the censuses of Iraq are inappropriate to local conditions. They do not reflect the real distinction between urbanism and ruralism which still clearly continue. The censuses consider all settlements, including the municipalities as urban if they have an administrative function regardless of anything else; the municipal boundaries were very much extended to include large rural areas in the 1977 census. Therefore, the urban growth was deceptive, particularly in this census (see Table 2.1), where urban popul-

ation numbered 800,453, or about 79.1% of the total population. According to the 1977 census, sixteen cities were identified. It should be noted that one of the errors of this census is that Um-Qassir City, the second main port of Iraq, with a population of 19,213, was considered as a part or quarter of Safwan City, with a population of 3,492. Safwan City as a customs town on the boundary between Iraq and Kuwait is not more important than Um-Qassir. Another example is the 52 villages which were included in the municipal boundaries of Abu Al-Khasib City and considered as urban in status. All these villages are separated from Abu Al-Khasib City, located in areas where the land use is still agricultural, and different from the city both in landscape and in having a part of their population dependent on agriculture. These villages depend on the nearby cities, particularly Basrah, for their goods and services. The same can be said about some other cities, such as Qurna, Mudaina, Diarre, Hartha, Shatt Al-Arab, Sieba, and Khaliq. According to our classification, such as those villages, as well as two settlements (Diajy and Talha), all of which were considered as urban in the 1977 census, have been classified as rural. In addition, Um-Qassir has been classified as a city separate from Safwan. (see Table 3.5).

Phases of Urban Settlements Growth

We have already pointed out that the real urban growth in Basrah Region has taken place since the Second World War. Table 3.5 clearly shows this growth in spite of the fact that it depends on the censuses of 1947, 1957, and 1965 which employed the administrative criteria to classify settlements, while our own criteria formed the basis of the classification

of settlements in 1977 (see Table 3.5). We can not use the same criteria to classify settlements in the first three censuses, since the data which the criteria require is unavailable. Nevertheless, the data of these censuses can be considered as a general indicator of urban growth.

Except for Basrah, Zubair, Abu Al-Khasib, and Qurna, which are the oldest cities in the Region, all the other centres have developed into urban status since the end of the 1940's. Table 3.5 shows that the number and size of the cities have increased continuously since 1947 when they were only seven. This increased to nine, twelve, and fifteen in 1957, 1965 and 1977 respectively.

All the cities, excluding Fao, Um-Qassir, Shatt Al-Arab, and Safwan, have been developed as central places to perform goods and services for their own population and those living in the tributary areas. The four other cities have been developed subsequent to the appearance of other urban functions: a port in both Fao and Um-Qassir; a University in Shatt Al-Arab, and a customs centre in Safwan. Then, the central services function started to develop later.

Historically, in the nineteenth century, Basrah City was the sole urban settlement in the Region. Qurna appeared as the second one before the First World War. Zubair and Abu Al-Khasib had urban status after this war. Fao's port was created at the beginning of the 1950's to export crude oil from oil fields in the Region. In Um-Qassir the government undertook to build the port in 1961; it was opened in 1967. The University of Basrah was opened in Shatt Al-Arab City in 1964. Safwan was developed as a customs centre and

**TABLE 3.5 THE GROWTH OF URBAN SETTLEMENTS IN BASRAH REGION
1947 - 1977**

	Urban Settlements	Number of population in the year of Censuses			
		1947	1957	1965	*1977
1	Basrah	m 101535	m 164905	m 310950	m 452102
2	Zubair	n 17884	n 28707	q 41114	q 66539
3	Shatt Al-Arab	n 6312	n 9807	n 13358	q 25697
4	Fao	n 2916	n 8169	q 12673	q 25638
5	Um-Qassir	-	-	-	19213
6	Hartha	-	n 5175	n 9267	n 19028
7	Abu Al-Khasib	q 11598	q 11318	q 13621	q 16740
8	Qurna	q 1568	q 4124	q 4988	q 11311
9	Huwear	-	-	-	n 7285
10	Khalij	-	-	-	n 5825
11	Diarre	-	-	n 2846	n 3642
12	Safwan	-	-	n 1600	n 3492
13	Sieba	n 1717	n 2407	n 2361	n 3400
14	Mudaina	-	n 1593	n 2057	n 3384
15	Bihar	-	-	n 1623	n 2204
Basrah Region		143530	236205	415748	665700

* The urban population have been calculated according to our classification.

Symbols : m = Muhafadha Centre. q = Qadha Centre
n = Nahia Centre

Source : The censuses of Iraq, 1947, 1957, 1965, and 1977.

boundary town between Iraq and Kuwait after oil production in the latter started in 1946, which led to the continuous emigration of a large number of people from Iraq to work there. However, it consisted initially just of offices of customs' agents, including the policemen, and their accommodation, as well as some houses of farmers working in that area; its real urbanscape development appeared in the 1960's.

During the last three decades seven villages have become urban centres as central places to perform different services including the administrative function. These are : Mudaina, Sieba, Hartha, Huwear, Bihar, Diarre, and Khalijj. All of these are administrative centres at the lowest level of the local government in Iraq, called Nahia Centres. Safwan is also at this level. Qurna, Zubair, Fao, Shatt Al-Arab, and Abu Al-Khasib are at the next level, called Qadha Centre. Basrah City is the highest in the Region, called Muhahadha Centre. Um-Qassir still follows Safwan City administratively. Table 3.5 shows the administrative developments in the Region since 1947.

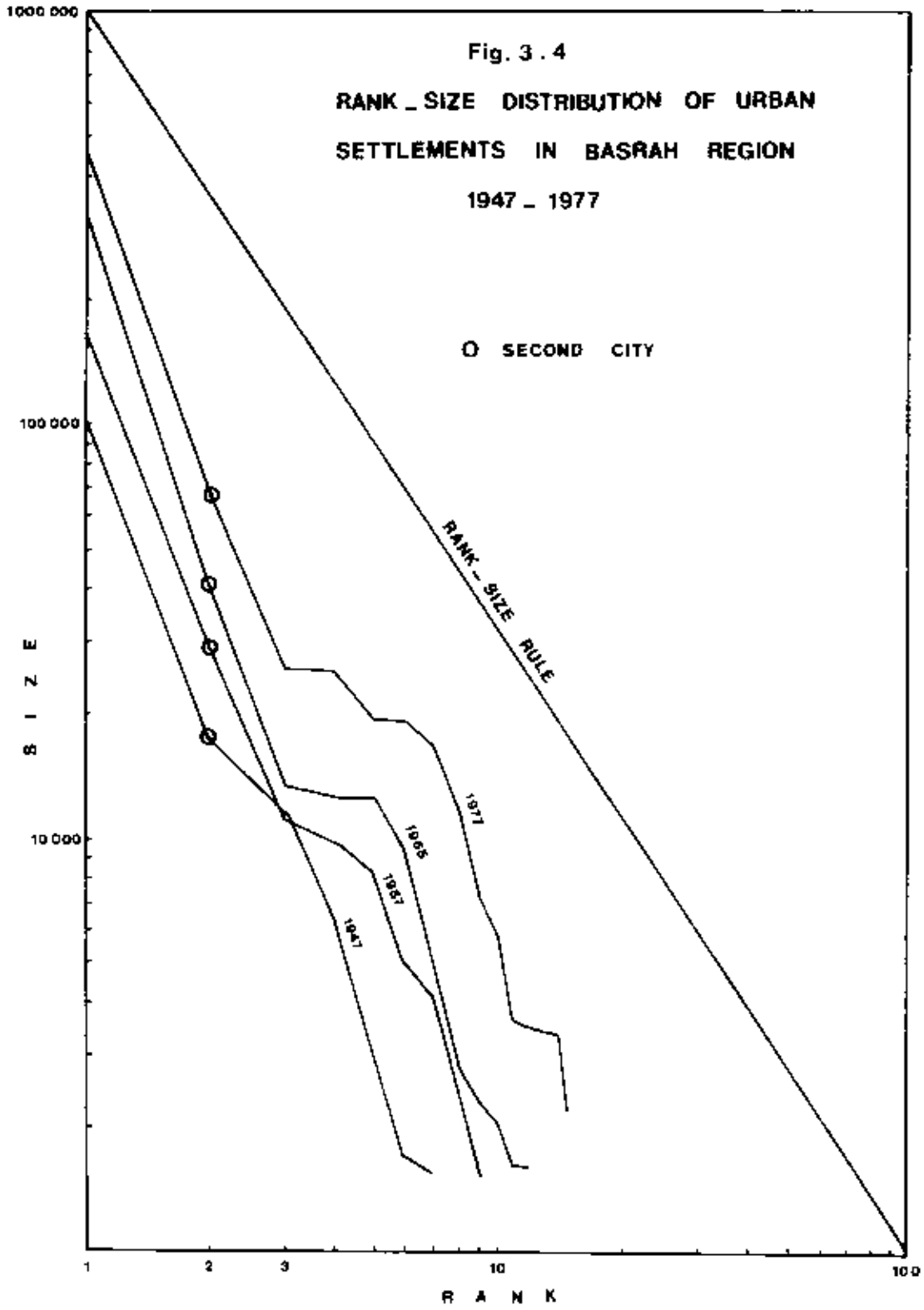
In the previous chapter we pointed out the reasons which led to urban growth in the Region and in Iraq as a whole; we have also discussed further reasons for that growth in some cities, in particular Safwan, Um-Qassir, Fao, and Shatt Al-Arab. Here we can add that people need to have a central place from which they may purchase the goods (service or merchandise) offered at the place. There is a maximum distance over which people will travel for this purpose; at some range from the centre the inconvenience of travel measured in time, cost and trouble will outweigh the value or need of the goods,

or an alternative nearer centre becomes available.⁽²¹⁾ This is a fundamental reason for the shifting of some settlements to central places in the Region. However, the administrative function also contributes to the development of a settlement. When any settlement becomes an administrative centre, it will be of interest to the local government authorities. As a result, many changes in its landuse are affected by these authorities, such as streets, offices, post office, houses for the officers, public gardens etc., as well as the other municipal services. In addition, a new relationship between this centre and the tributary area will be created accordingly. This administrative relationship will automatically further the other ties between the two. However, all these changes need quite a long time to emerge clearly and effectively. Therefore, simply creating an administrative function in a rural settlement and considering it as urban does not suffice to shift it immediately from rural to urban status. This situation can be noted in Diajy and Talha, mentioned previously, which were considered urban in status in spite of the fact that they still are far from the urban-scape as known in Iraq.

Urban Settlements Pattern

This section deals with the size, spacing and distribution of the cities in Basrah Region, which have been previously discussed in relation to overall settlements, both urban and rural.

Table 3.5 and Figure 3.4 show that Basrah City was the largest one by population size in all four censuses. Zubair



was the second largest city, while the third one was Abu Al Khasib in 1947 and 1957, then Shatt Al-Arab in 1965 and 1977. Abu Al-Khasib had depended for its population growth on natural increase, since migration to it is an insignificant factor in growth, while it is a very important factor for Shatt Al-Arab, as for most cities.

Figure 3.4 shows that there was a large gap between the population sizes in the first city and the second from 1947 to 1977. While the last seven cities have populations below 5,000, the size of all other cities, except for Basrah and Zubair, is below 25,697, the size of the third city. If we order the first eight cities in the Region according to Zipf's rule, they look like this:

Rank	1	2	3	4	5	6	7	8
Basrah Region	1	0.15	0.06	0.06	0.04	0.04	0.04	0.03
Zipf's rule	1	0.50	0.33	0.25	0.20	0.17	0.14	0.13

The variation between these two cases seems very evident where all cities in the Region, except Basrah, are small, dominated by the first city, the primate, as a result of factors already mentioned in a previous section. The size distribution of the cities appears to justify the primate city concept as Jefferson has shown.

Figure 3.3 shows that the spacing of the cities is irregular, not controlled by a rule or system. There is no relation between size and spacing of the Region's cities, as some authors have shown elsewhere. The distance separating the first city from the second does not exceed 18 km. The third city and the sixth are located close to the first and are

considered as suburbs of it. The cities of the lowest level are widely spaced with distances between them ranging from, for instance, 7 km. to 10, 24, 28 and 30 km. Except for Basrah, Hartha, and Shatt Al-Arah, the minimum distance between one city and the next is 7 km. such as between Huwear and Mudaina. The maximum spacing is about 54 km., between Fao and Um-Qassir, the two ports in the Region, where the geographical location is the reason for their existence. Geographical location accounts for the relative importance of Qurna, Huwear, and Mudaina as central places, as each of them is located in a site surrounded by a large populated area and therefore needs to provide a services centre. These cities are linked with their tributary areas by a network of water and land routes (see Fig. 3.1). Many other cities are important central places because of the distance factor, which we have already mentioned, such as Khalij, Bihar, Sieba, Abu Al-Khasib, Zubair, and Diarre, as well as the above three cities. The location of Safwan on the road linking Iraq and Kuwait close to the boundary between these two states, is the main reason for its existence. Shatt Al-Arab and Hartha, which form a relatively important population cluster as suburbs, need to provide a market place to perform goods and services for their populations and those who live in the adjacent areas. This explains why these two cities include a market place to perform central services as well as being administrative centres.

Residential Settlements

There are 196 settlements in this group, or 56.5% of the total settlements in the Region (Table 3.4). All of these are found in the river levee areas, except for just five settlements which are found in the Zubair area. Because of the problems facing agriculture on the one hand, and the employment opportunities available in other areas on the other, a shift of the labour force from agricultural activities to non-farming ones has become a common phenomenon at the present time. Nearly all the economically active male population migrate from these settlements elsewhere for work, whether in the Region or other Iraqi regions. If some people have been found working in agricultural activity in their settlements, these form a very small proportion of the population, consisting of children, women and old men. This happens in some areas of the river levees, particularly on both sides of the Shatt Al-Arab river, whereas no one depends on agriculture in other places in those areas. Agriculture is not the main population activity in all of these settlements in this group. They have shifted to being just the dwelling places of people working elsewhere. For these reasons we have preferred to call them residential settlements, since in Basrah Region and Iraq as a whole, a settlement is usually a work and home place at the same time. This was the case in most settlements many years ago, and is still the case in places other than those we call the residential settlements, which have become just home places in recent years.

In the Zubair area, four settlements of the five were first created as secondary railway stations. Some people have

lived in these settlements although they work in other places, and they form the majority of the inhabitants. The fifth settlement was originally created as a residential area.

Industrial Worker Settlements

There are 10 settlements in this group, or 2.9% of the total. Three of these settlements are found in the river levee areas, while the remainder are found in the Zubair area (see Fig. 3.3). They are characterized by the fact that their population depends mainly on their industrial function. These settlements consist of dwellings that have been built by the public industrial establishments sector, near the factories in which the inhabitants work. The population living in these settlements have migrated from different settlements in the Region and other regions. The growth of these settlements will depend on that of the factories themselves. We expect that the number of settlements in this group will increase, since the number of these factories is to increase in a few years, according to government policy.

Agricultural Settlements

There are 69 agricultural settlements identified in the Region. They form about 20% of the total. It is surprising that there are so few agricultural settlements in the river levee areas which were the main agricultural areas, while the majority are found in the marshlands and Zubair area which are considered non-agricultural environments because of their difficult physical conditions. However, the population in these two areas do very hard work and practise

intensive agricultural methods, which will be discussed in detail in the next chapter. 32 settlements of this group are found in the marshlands, both the seasonal and perennial. Except for four settlements which are found in the seasonal part of the Zijry marsh, all others are located in the Hammar marsh, nine in the seasonal part, and nineteen in the perennial one. In the Zubair area 13 agricultural settlements are found distributed in different places. The river levee areas include only 24 settlements concentrated on the right bank of the old course of the Euphrates river (see Fig.3.3). It should be noted that some of the farmers living in settlements in this area practise the agricultural activity in the adjacent seasonal marshlands. Although the majority of the population in these settlements depend on agriculture, a few of them are non-farmers working in other places. The farmers in this area practise the same agricultural methods as are used in the marshlands.

It should be noted that fishing is the second most important activity of the marshlands population. Nevertheless, agriculture remains their main activity.

Animal Breeding Settlements

There are 57 settlements in this group, or 16.4% of the total number in the Region. Here the specialization is very clear, since the population living in these settlements depend on animal breeding as a commercial production, marketing mainly to Basrah City, unlike the other rural settlements where people breed some animals, such as cows, poultry, and sheep, for their personal consumption.

It should be noted that 55 settlements of the total in this group specialized in breeding buffalo. These people are locally known as "Al-Mudan". Except for three settlements located in the river levee area, all others are found in the marshlands which provide the right environment for buffalo, and will be mentioned in the next chapter. They are distributed as follows; 3, 19, and 30 in the marsh of Suwaib, Zijry and Hammar respectively. The first three settlements are found on the right bank of the Tigris river between Basrah City and Qurna. They were moved here because of the social problems of Al-Mudan in the marshlands.

The population of marshland settlements practise some functions such as fishing or selling reeds and bulrush in particular seasons, as secondary sources of family income. Nevertheless, breeding buffalo remains the main function of the population in these settlements so that we can consider them as specializing in this function.

In addition, there is one settlement specializing in breeding poultry (chickens) to produce eggs located southeast of Zubair City, belonging to the public sector. It had a population of 132 in 1977.

There is also one settlement in which most of the population breed sheep, located on the left bank of the Tigris river northeast of Diarre City. Some people in this settlement practise agriculture, while others migrate elsewhere for work (see Figs. 3.1 and 3.3).

Conclusion

The population distribution of Basrah Region forms certain patterns which differ from one area to another, and there is a clear relationship between the distribution of those patterns and topographic units in the Region. In the river levee areas the distribution pattern is a ribbon following the length of the rivers, while in the Al-Zubair area the population is irregularly distributed. In the seasonal marshlands it is distributed at the edges of the perennial marshes; in the perennial marshlands people live on the islands which are found particularly in the Hammar marsh. These distribution patterns of population in the Region can be attributed to two main groups of factors : firstly, physical factors, including particularly topography, water resources and soils; secondly, distribution of the establishments in which employment opportunities are available, as in the Al-Zubair area. Consequently, the population density differs from one area to another throughout the Region, from some 361 persons per sq.km. in the river levees, to some 11 in Al-Zubair, while there are large unpopulated areas in the perennial marshes. Thus, the number of settlements and their total population differ throughout the Region, from 236 settlements in the river levees, forming 68% of the total settlements with 83% of the total population of the Region, to 30 settlements in the perennial marshes, forming 8.6% of the total settlements and 1.3% of the total population.

Settlements in Basrah Region, except for Basrah City,

tend to be small; the second largest city (Al-Zubair) had a population of some 67,000 in 1977, and the remainder are below 26,000. This pattern of size distribution is similar to that of all Iraq's regions, which have a primate city beside a large number of small towns and villages, and settlements of intermediate size are absent. The distribution of settlements by size in Basrah Region does not follow the Zipf's rank-size rule, but displays primacy, corresponding closely to the concept of the primate city introduced by Jefferson, not only because the main city, Basrah City, has a population seven times that of the second city, but also because of the rate of growth and the concentration of regional facilities in that city.

In terms of the relationships between size and spacing of settlements, in Basrah Region settlements are irregularly distributed, and there is no absolute spatial rule or system controlling their distribution, which is affected by various local factors.

According to the functional classification of settlements employed in this chapter, in Basrah Region settlements have been classified into five classes: urban, residential, agricultural, animal breeding, and industrial worker settlements. The number of settlements and their total population differ from class to class. Urban settlements are the most important in terms of the number of population, having 66% of the total population of the Region, while consisting of only 15 settlements, 4.3% of the total number in the Region. Residential settlements are the most important in terms of the

number of settlements, forming about 57% of the total number in the Region, and having about 24% of the total population. Industrial worker settlements are the least important in terms of both number of settlements and number of population, 2.9% and 2.9% respectively.

Isolated houses in Basrah Region and in Iraq as a whole, are not a common feature, despite the fact that a few are found in some places, and are statistically and administratively part of the nearest settlement. The nature of social life in Iraq, particularly in the rural areas where the tribal system still dominates, forces people to live in nuclei settlements, regardless of their size.

However, in Basrah Region as in Iraq as a whole, the spatial distribution, size distribution, and functional structure of settlements are irregular and imbalanced, affected by various local factors. Accordingly, all these aspects need to be controlled and planned by the government, in order to create a more regular and balanced situation.

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CHAPTER FOUR

THE AGRICULTURAL SECTOR IN BASRAH REGION

Although in the past agriculture used to be the most important economic sector in Basrah Region, and the main source of employment, recently its importance has greatly decreased, not only relatively, but also absolutely. However, this sector still remains important in terms of labour force, of landuse, and of production and consequently the present chapter investigates these aspects of the agricultural sector* as it undergoes considerable structural change throughout the Region.

The first part of this chapter is devoted to a discussion of the agricultural development in Iraq as a whole, during different periods up to 1980. The second part deals with crop production, with the emphasis mainly on landuse and production. It also includes a comparative study of agricultural holdings, cooperation, and labour. The third part deals with livestock, poultry and fishing, and again the emphasis is on landuse and production. In conclusion, some of the reasons for agricultural changes, and this sector's generally reduced status will be discussed, as will the consequences of these changes for the region and its people.

* (here defined so as to include fishing and livestock, as well as crop production).

Agricultural Development In Iraq

Iraq was traditionally an agricultural country, the agricultural sector being the most important source of employment and national income in the country. The modern development of this sector began in the mid 19th century, particularly following the opening of the Suez Canal in 1869. As a result, Iraq came more and more into contact with the West and with Western economic forces. The most important economic factor was the growth of foreign trade. This was both facilitated by and resulted in the development of river transportation, the first significant modern overhead capital development in Iraq.⁽¹⁾ Thus, the increase of European and Indian demand for Iraqi agricultural products led to an increase in agricultural production in the country, which, as a result, changed from self-sufficiency production to commercial production for export purposes. The total value of the agricultural exports (both crops and animal products) increased from ID 86,000 in 1864, to ID 1,116,000 in 1878, ID 3,614,000 in 1912, ID 8,622,000 in 1944 and some ID 16 million before the 1958 Revolution. The main products exported were dates, wheat, barley, wool, leather, and live animals, which together formed between two-thirds and four-fifths of the value of total exports in Iraq during the period 1864-1958.⁽²⁾

Consequently, the total area of cultivated lands in Iraq greatly increased, from 1,613,000 mesharas* before World War I,⁽³⁾ to some 10 million mesharas according to the

* Meshara (donum) = 2500 sq.m. = 0.6 acre = 0.25 hectare.

agricultural and livestock census for 1952-53, and 15.9 million mesharas in the 1957-58 census. This was partly attributed to the developments which took place in the control of the surface water resources in Iraq during 1918-1958, including the construction of dams and reservoirs and the digging of irrigation canals. Also, this either encouraged or obliged the nomadic tribes to change their life style, either to settle and cultivate lands, or to breed sheep and goats instead of camels. The total nomadic population decreased from some 450,000 in 1867, to some 393,000 in 1905, 250,000 in 1947, and to 66,000 in 1957. Yet, during 1867-1957 the overall rural population increased by an average annual rate of 2.2%, giving a seven-fold increase over the 90 years. However, the average growth rate of the agricultural production was only 1.2% per annum. This is part of the evidence which indicates the low standard of living in the rural areas during that period. Although there was expansion of agricultural production, this was almost entirely due to the increase of cultivated lands and of the labour force; agricultural productivity per meshara or farmer either remained static or declined. In fact, the average production of cereals declined from some 225 kg. per meshara in the 1920's to some 143 kg. in the 1950's.⁽⁴⁾ This was attributed to the use of traditional and primitive techniques in the agricultural process, and the increase of soil salinity, as well as to the nature of landownership at that time.

Until 1958 feudalism was the fundamental feature of the land tenure system in Iraq. The great majority of the peasants worked as share-croppers under severe conditions of

employment and exploitation. The large landowner or sheikh exercised absolute authority over his peasants in almost every sphere of their life, and their fate was entirely in his hands. Most cultivable lands, and therefore agricultural wealth, was concentrated in the hands of the two strongest elements, the urban absentee landlord and the tribal sheikh.

According to the 1957 Census, the number of the working population in the rural areas of Iraq was 1.21 million, while the number of landowners was some 168,000. This means that about 86% of the total agricultural labour force did not possess land before 1958. Furthermore, about 98% of the landowners owned no more than 7.1 million mesharas or 32% of the total cultivated lands (23 million mesharas) while the remaining 2% of the total landowners possessed the remaining 15.9 million mesharas, 68% of the total cultivated lands. (5)

Despite (or because of) the expansion of agricultural production, the rural unemployment problem increased greatly because of the land tenure system, where landlords controlled agricultural land and production. In 1947 the number of working-age population was 1,399,000 in the rural areas, increasing to 1,814,000 in 1957, while the number of the actual working population in those areas only increased from 748,000 to 852,000 respectively. This meant that the increase of the working age population was four times greater than that of the working population, and also meant that the number of unemployed rural population increased from some 651,000 in 1947 to some 962,000 in 1957, the total increase being 311,000 during 1947-1957. (6)

In 1958 the Agrarian Reform Law No.30 was issued in an attempt to solve the land tenure problems in Iraq. This law was modelled on that of Egypt which had been enacted in 1952, in spite of the fact that agriculture in the two countries had little in common. It provided for the expropriation of 75% of the privately owned arable area of Iraq (over nine times the area that had been expropriated in Egypt). Except for differences in the maximum holdings of irrigated and non-irrigated land, the law took no account whatsoever of the great regional differences in Iraq, the wide variety in the conditions of tenure, and in the circumstances affecting different crops. The area of agricultural land that could be owned by a single owner was reduced to 1,000 mesharas of irrigated land and 2,000 mesharas of rainfed land. Lists of landowners coming under the law were to be prepared and their land in excess of these amounts expropriated against compensation in government bonds. This land was to be redistributed to small owners to provide each recipient with not less than 30 and not more than 60 mesharas of irrigated land and double that for rainfed land, with payment to be spread over 20 years. Other provisions regarding the share of the landowner in the crops, wages, etc., were also included.⁽⁷⁾ It was hoped that the reform would take only five years to complete, but the application of the law was initially mismanaged and the expropriation of land consistently ran ahead of the ability of the administration to distribute it.⁽⁸⁾ The confiscation of land was very slow; the total appropriated land in Iraq during 1958-1968 was some 7 million mesharas, 58% of the total area (12 million m.) coming under the law.

Until 1968, the total area distributed to the cultivators in Iraq was 3,177,538 mesharas to 57,117 families, forming 25.5% of the total appropriated land during 1958-68.⁽⁹⁾ There was a hope that agrarian reform would cure all these miseries of the impoverished agricultural population. However, since the new project could remove only a little of the confusion which had predominated in rural areas for generations, and could not satisfy their hopes in a short time, they lost confidence in it and their migration to urban areas accelerated.⁽¹⁰⁾

In 1970 a new agrarian reform law was issued in the hope of solving the problems which had led to the failure of the former law, and of developing the agricultural sector into an efficient and integrated part of the national economy. As a result, during 1970-1973 the total appropriated land was some 5 million mesharas, whilst the total distributed land was some 6 million mesharas, involving lands appropriated between 1958 and 1973 which was given to 170,700 families.⁽¹¹⁾ In 1978 the total distributed land increased to 7,618,886 mesharas, distributed to 242,975 beneficiaries.⁽¹²⁾

The 1970 Law also aimed to develop agricultural cooperatives in Iraq. In 1959 the number of farmers' cooperative associations in the whole country was 263; this increased to 422 in 1970, 1,400 in 1975,⁽¹³⁾ and 2,315 in 1978,⁽¹⁴⁾ with membership of 8,969, 22,880, 196,266, and 348,959 respectively. The total loans paid by the agricultural bank to the agricultural cooperatives in Iraq as a whole increased greatly in the 1970's. It increased from ID 96,688 in 1966/65, to 412,665 in 1968/69, some ID 2 million in

1970/71, ⁽¹⁵⁾ and some 21 million in 1978. ⁽¹⁶⁾ However, the agricultural cooperative movement in Iraq has not fully achieved its goals for reasons which will be considered later in this chapter.

In addition to the legal measures provided in Iraq to develop the agricultural sector, other development efforts have been made by the government as part of the development plans which have been introduced since the early 1950's for the overall national development of Iraq.

During the 1950's two plans were introduced; the first five year programme covering the period 1951-55, and the 1955-1959 programme, in both of which the emphasis was on water control and irrigation projects. The investment allocations made to the agricultural sector were ID 57.7 million and ID 82.8 million, forming 42.7% and 29.3% of the total allocations for the two programmes respectively. The actual expenditures on agriculture were ID 32.8 million, 57% of the allocations to this sector in the first programme, and ID 40.4 million, 49% of those in the second one. ⁽¹⁷⁾

In the provisional economic plan 1959-61, the investment expenditures on the agricultural sector were ID 10.3 million, 71.4% of the allocations to this sector in 1959/60, and ID 10.8 million, 59.7% of those in 1960/61. About 70% of the total allocations to agriculture were made to projects of drainage, irrigation, and water storage, while the remainder was made to research, advice, prevention, livestock development projects, and the building of silos. In the detailed economic plan (1961/62 - 1965/66) the total

allocations to agriculture were ID 113 million, 20.3% of the total investments allocated to the plan, compared to 30% allocated to industry, 24.5% to transport, and 25.2% to construction. This means that the agricultural sector had the lowest proportion of the allocations in this plan. The emphasis of the plan was also on water control and irrigation projects, as well as on the construction of five state farms and several silos.⁽¹⁸⁾ However, the actual expenditures on agriculture was approximately ID 20 million, 18% of the total allocations to this sector.⁽¹⁹⁾

In the 1965-69 plan the investments allocated to agriculture were ID 173.5 million, 26% of the total allocations to the plan. However, the actual expenditure on agriculture was ID 56.3 million, 32% of the allocation to this sector, which was less than that on other sectors.⁽²⁰⁾ In addition to the goals of the previous plan the latter also emphasized the development of agricultural cooperative associations, advice, prevention, and livestock projects. In fact, a comparison between the actual expenditures on agriculture and the allocations to this sector in all the plans introduced during the period 1951-1969, shows that the implementation rate was low. This meant, not surprisingly, that none of these plans achieved all their goals. Some 'goals' were not even attempted.

The investments allocated to agriculture in the 1970-74 National Development Plan amounted to ID 306 million, forming 18.9% of the total allocations for this plan, compared with 20.2% for industry which had the highest proportion of allocations. During the five years of the plan

the total expenditures on agriculture was ID 207 million, 17.7% of the total expenditure of the plan.⁽²¹⁾ Although detailed figures about the 1976-80 plan are not available, it can be said that, during the period 1975-1977 the allocations to agriculture totalled ID 865 million, forming 17.1% of the total investment programme of the plan in this period.⁽²²⁾ Both plans (1970-74 and 1976-80) aimed to develop all the rural areas in Iraq socio-economically, in order to make them approach the standard of living of urban areas. The emphasis of these two plans was on the improvement of productivity in agriculture, and on the leading role of state, collective, and cooperative farms.

However, despite all the development efforts made by the government through the plans which have been introduced since 1951, and the great funds expended on the agricultural sector in Iraq, it remains the weakest sector and a continuing drag on the country's development. In addition to the serious physical problems facing agriculture, such as those relating to soil and water resources, many social and economic problems still face this sector, which are the inheritance of the political history of Iraq. A short term solution to such physical and human problems is going to be difficult to find; furthermore there are additional technical problems associated with the actual implementation of development plans, as well as lack of funds and a general lack of confidence in efforts made in this field. Until these problems are effectively dealt with, however, it will be impossible to fully implement the development plan and to see a significant improvement in the agricultural sector.

Evaluation of the Agricultural Sector in Iraq

In evaluating this sector it is necessary to employ some indices to analyse its development and importance in the country's economy since the early 1950's when development efforts began in Iraq. These indices include the cultivated area, the size of the labour force, production, exports, and the percentage contribution of agriculture to the national income.

In Iraq the total cultivable area is estimated at 48 million mesharas or 27% of the total area of the country (181 million mesharas). of which some 23 million mesharas (or 48% of the total cultivable area) are under cultivation.⁽²³⁾ In 1952/53 it was some 10 million mesharas, increasing to 15.9 in 1957/58, as previously mentioned, while it decreased to 13 million mesharas in 1971,⁽²⁴⁾ and 11 million mesharas in 1978.⁽²⁵⁾

Although the total size of the labour force in the agricultural sector increased slightly from 1.21 million in 1957 to 1.4 million in 1965, its proportion to the total population of the country decreased from 19.1% to 17.1% during this period.⁽²⁶⁾ In 1977 its total number decreased to some 943,000, forming only 7.8% of the total population. Moreover, it constituted 68.7% of the total labour force of Iraq in 1957, the proportion declined to about 30%.⁽²⁷⁾ These figures confirm the increasing labour migration from this sector to the others, which was discussed in the preceding chapters.

In addition to the fact that less than half of the

land under cultivation is cultivated in any one year due to the fallow system, the productivity of the cultivated land in Iraq is low compared with that in many countries, both developed and developing. The land productivity of wheat and barley, the main crops in Iraq, can be employed as a good index in this field. In 1978, for instance, the area cultivated with these two crops was 8.8 million mesharas, 80% of the total cultivated area in the country. In 1952 the productivity of wheat was 159 kg. per meshara,⁽²⁸⁾ which decreased to 120 kg. in 1966,⁽²⁹⁾ and increased to 159 kg. in 1978,⁽³⁰⁾ while the productivity of barley was 253, 178 and 216 respectively. This means that after the decline of productivity of these two crops during the 1960's, it began to increase in the 1970's due to the development efforts which have doubled since the early 1970's, as already discussed. Nevertheless, it is still low compared with that in many other countries. In 1966, for instance, the productivity of wheat was 628 kg. per meshara in Yugoslavia, 670 in Egypt, 383 in Australia, and of barley was 453, 600, and 373 respectively.⁽³¹⁾ The low productivity of land in Iraq is due to soil problems and the use of primitive and traditional techniques in agriculture.

Consequently, the production of these two main crops has been negatively affected in Iraq since the 1950's. Although the area under wheat increased greatly from 4.2 million mesharas in 1952 to 5.9 million mesharas in 1978, its production increased only slightly from 762,000 tons to 909,000 respectively. The production of barley decreased greatly from some 1.1 million tons in 1952 to 617,000 tons

in 1978. This can be attributed firstly, to the decrease in the total area cultivated with this crop from 4.8 million mesharas to 2.9 million mesharas respectively; (32) secondly, to the decline of productivity, as already mentioned. The same can be said about dates which is the main export crop. In the early 1950's the total area cultivated with date palms was estimated at some 500,000 mesharas, the total number of the palms being some 32 million, (33) and the production amounting to 450,000 tons; (34) by 1978 these figures had decreased to 382,000 mesharas, 21.4 million date palms and 389,000 tons.

The livestock situation is no better than that of crops. The number of cattle in Iraq was 1.3 million in 1953; this increased to 2.2 million in 1963, and decreased to 1.7 million in 1978; for sheep the number was 8.6 million, increasing to 10.5 million and then falling to 9.7 million; for buffalo 226 thousand, which increased to 424 thousand, and decreased to 170 thousand; for goats 2.4 million, which increased to 3.1 million, and decreased to 2 million respectively. (35) These figures show that there was a slight increase in the number of these four main kinds of animals in the country during 1953-1963, compared with their decreasing number during 1963-1978. This can be attributed to the population shifting from livestock breeding to other economic sectors due to the problems facing this activity.

The gross national product at current prices increased from ID 303.48 million in 1953, to ID 579.92 million in

1961, ⁽³⁶⁾ and ID 4,582.79 million in 1978. ⁽³⁷⁾ The agricultural sector (including livestock, forestry, and fishing) accounted for about 23% of the GNP (including crude oil extraction), but then decreased to 19.9%, and 7.6% respectively, while it accounted for about 38.9% of the GNP (excluding crude oil extraction), 30.5% and 16.5%. In both situations (including or excluding crude oil extraction), the percentage contribution of the agricultural sector to the GNP has greatly decreased since the early 1950's.

Table 4.1 shows that the total value of the agricultural exports of Iraq at current prices increased very slightly from ID 18.1 million in 1952 to only ID 26.2 million in 1978, a total increase of just ID 8.3 million over 26 years. This increase can mainly be attributed to the price increases which took place during this period. However, as shown in Table 4.1, the percentage of the agricultural exports in the export total, excluding crude oil, has greatly decreased since the early 1950's. All figures in the table, both absolute and relative, confirm the insignificance of agricultural exports to the country.

The increased expenditures by the government in other sectors of the economy, and the rising national standard of living, coupled with population growth, have resulted in a growing demand for food and other agricultural products; since domestic output has not substantially increased, imports have greatly increased. These increased from ID 30.6 million in 1962, ⁽³⁸⁾ to ID 268.7 million in 1978. ⁽³⁹⁾ Grain imports alone increased from ID 9.6 million in 1964, ⁽⁴⁰⁾ to ID 74.9 million in 1978. ⁽⁴¹⁾

TABLE 4.1 AGRICULTURAL EXPORTS OF IRAQ, 1952-1978, AT CURRENT PRICES (ID MILLION)

Year	Agric- ultural Exports	Total Exports ID million		Percentage Ag.Ex.	
		Excl.Crude oil	Inc.Crude oil	Exc.C.O.	Inc.C.O.
1952	18.1	18.8	98.4	96.3	18.4
1962	18.3	19.5	243.1	93.8	7.5
1969	15.6	22.0	369.1	70.9	4.2
1978	26.4	62.9	3,328.9	41.9	0.8

- Source :
1. Hasan, M.S., Economic Development of Iraq, Foreign Trade and Economic Development: 1864-1958, Vol.1. Beirut, undated, p.535.
 2. Ministry of Planning, Economic Board, General Economic Evaluation for the Agricultural Sector in Iraq, 1971, p.14.
 3. Annual Abstract of Statistics 1978 (Iraq), pp. 191-194.
 4. * The figure related to the crude oil exports taken from :

An Arab-British Chamber of Commerce Publication, Focus on Iraq, Conference held on 2 July, 1980, London, p.54.

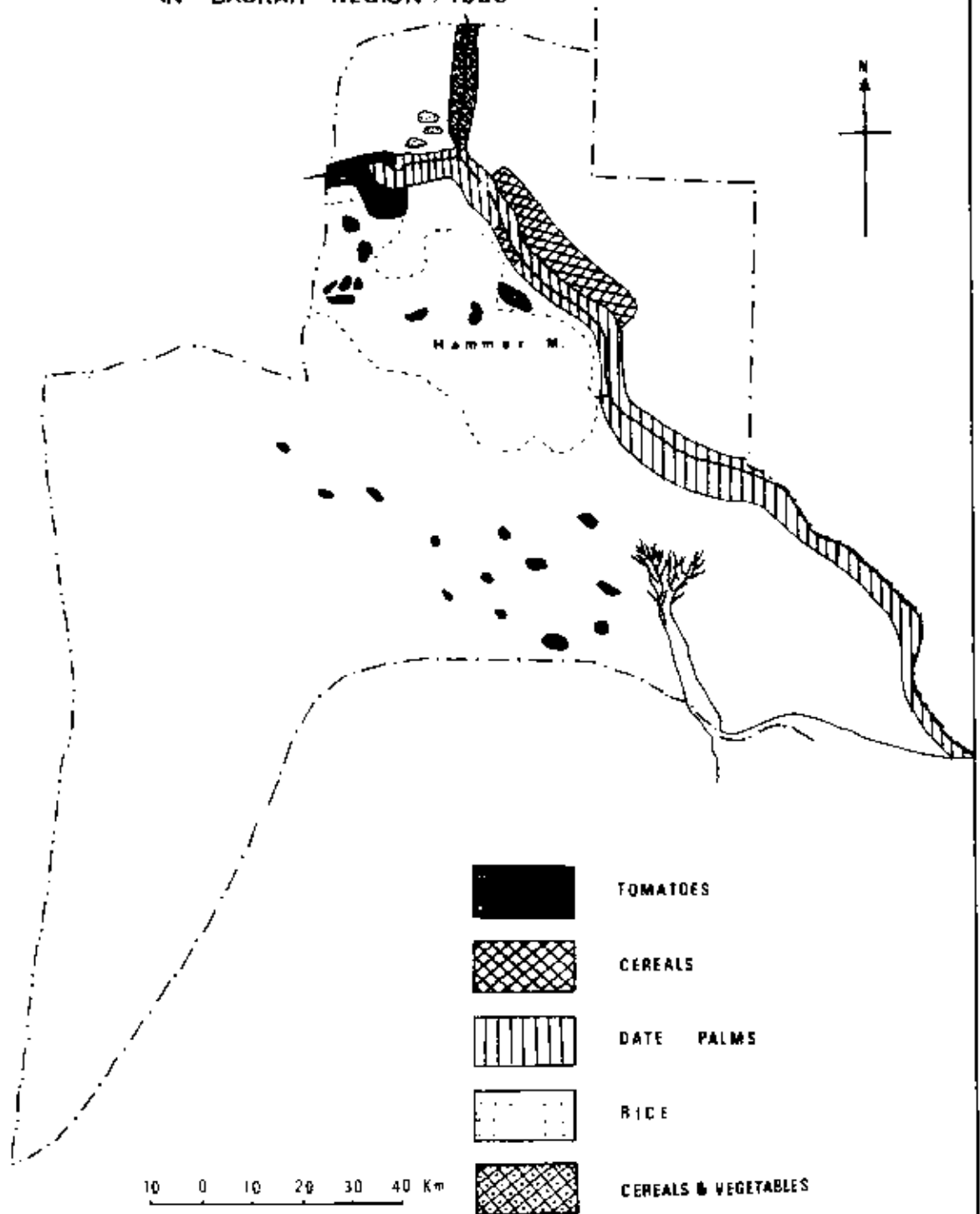
The above discussion confirms that, despite the significant plans introduced and great sums spent to develop the agricultural sector, this sector is still backward and weak, facing many serious problems in a country that could well be an exporter of agricultural products.

Distribution of Cultivated Areas in Basrah Region

As shown in Figure 4.1, at the present time, the cultivated areas of Basrah Region are confined to very limited locations. The total area of cultivated lands was about 187,000 mesharas (74.8 square km.), 0.4% of the total area of the Region in 1979. About 84.4% of the total cultivated area is distributed within the river levees, while about 9.5% (17,700 mesharas) is in the Marshlands, and 6.1% (11,400 mesharas) in the Zubair area.

The cultivated areas in the river levees are found within a belt of between one and five km. on both banks of the Tigris-Euphrates and Shatt Al-Arab rivers, with a total area of some 157,900 mesharas. However, it should be noted that about 130,000 mesharas, or 82.3% of this total area are covered by the long-established palm gardens, and date palms are considered one of the perennial trees. This fact means that the river levees include only 27,900 mesharas, 17.7% of their total cultivated areas, which produce other agricultural yields, distributed mainly on both banks of the Tigris river, particularly between Qurna City and the northern boundary of the Region. Nevertheless, some agricultural yields are produced in limited areas within the palm gardens. These areas are estimated at some 9,000

Fig. 4.1 DISTRIBUTION OF CULTIVATION AREAS
IN BASRAH REGION, 1980



mesharas, 6.9% of the total area of the palm gardens, and 4.8% of the total cultivated area in the Region.

There are two distribution patterns of the cultivated areas : firstly, in the islands which are found in the perennial part of the Hammar marsh, as mentioned previously; secondly, in scattered positions in the seasonal part of this marsh and Zijry marsh, particularly in its southern parts. There is no cultivated area in the Swaib marsh at all. The main area of agricultural production in the marshlands extends from the old course of the Euphrates river to these islands, and is the most important area of tomatoe production in Iraq in winter.

In the Zubair area the cultivated lands are thinly and fairly widely distributed. However it should be noted that nearly all these areas are found within a belt extending between the cities of Zubair, Um-Qassir, and Safwan, toward the northern boundary of the Zubair area. Agricultural production is absent in the remainder of this area.

Factors Affecting The Distribution

The distribution of the cultivated areas, as described above, is explained by consideration of several factors which can be divided into two groups, Physical Factors and Human Factors.

A. Physical Factors:

These are the most important factors affecting the agricultural activity in a region that was undeveloped. In addition, some old agricultural methods are still employed

by the farmers. As mentioned in Chapter three, topography, water resources and soils, which mainly affected population distribution, also affect distribution of the cultivated areas in the Region. On the other hand, climatic elements, particularly rainfall and temperature, as described in Chapter One, are similar throughout the Region. Therefore, they are considered as constant factors. In other words, the distribution of these elements does not affect the distribution of the agricultural products.

The groundwater is the sole water resource for agriculture in the Zubair area. Thus it is the main factor affecting the location of farms in this area. The farms' size and location are determined mainly by quality and quantity of ground water.

The situation is different in the alluvial plain. As mentioned previously, this plain is a low land facing continuously the problem of flooding. Accordingly, the river levees are the best areas for agriculture, since they are the highest and water is always available from the rivers. However, although the soils are less saline here than elsewhere in the plain, it should be noted that the soils outside the palm gardens are the main factor affecting agricultural production. These gardens include a large network of creeks and channels used for irrigation and drainage controlled by tide and ebb twice a day, while the remainder of the river levees have no drainage system. In addition, these areas have been cultivated by farmers employing bad methods for a long time. As a result, the salinity has increased continuously, and the cultivated lands and the production average have decreased, particularly

in the areas which are located on both banks of the Tigris river upstream of Qurna.

The surface water level is the main factor controlling the agricultural activities in the marshland areas. These areas are covered by flood water for several months every year. Thus, lands can not be cultivated before the flood-water is drained. In the light of this fact, the area of the cultivated lands and the time of cultivation depend on the floodwater level. The correlation between these variations is inverse : in the years, with high floodwater level, the cultivated areas decrease and the time of cultivation is late, and vice versa. This phenomenon is very clear in the tomato production areas in the marshlands. Here the correlation coefficient between the water level and the cultivated area was high (-0.72) according to the findings obtained by the study carried out by the writer in 1977. (42)

Nevertheless, the seasonal marshes suffer from shortage of water during the period after the flood season. Therefore, the cultivated areas are found at the fringes of the perennial marshes, or where water is available from the channels found in some places (see Fig. 4.1).

B. Human Factors

Although physical characteristics are the most important factors affecting the distribution of cultivated areas in the Region, human factors also contribute to determine size and location of these areas :

1. The cultural level of the agricultural population, and their technical-productional potentials, are main factors.

It should be noted that large areas of arable lands are left uncultivated as a result of these factors. The farmers need to cultivate these lands, but their limited potentials prevent them. They employ traditional techniques in most agricultural processes, although some farmers have used machines in some processes on a limited scale recently. This phenomenon can be noted clearly in the river levees, particularly outside the palm gardens, in the Zubair area, and Marshlands.

2. The distribution of population affects the distribution of cultivated areas. It is well known that cultivated areas are close to settlements where the farmers live. This explains why there are uncultivated lands in the unpopulated areas, for example within the river levees outside the palm gardens, although the physical conditions of these lands make them suitable for agricultural production. In the marshlands, where the agricultural production has only recently been introduced, people practised other activities before. Because of their poor potentials, they have only cultivated the lands close to their own settlements. It can be said that the correlation between distribution of settlements and that of cultivated lands in this area, is very high.

3. The shifting of agricultural labour to other activities is a most important factor causing large areas to become uncultivated. This case has happened in the whole river levee areas, both within and outside the palm gardens. For example, formerly large areas in the palm gardens were used to grow different vegetables, but this kind of agricultural production has now stopped.

However, large cultivated areas in the Marshlands have been created by the labour force in marsh settlements changing from their own previous occupations to agricultural activity.

4. No agricultural production can take place in certain areas, since government policy requires these areas for public purposes, such as industry, oil production, services sector, etc. Accordingly, production has stopped in several large areas in the Region, particularly certain river levees.

5. Urban growth is another important factor affecting the distribution of the cultivated areas. This phenomenon has become clear recently. Many years ago all cities included cultivated areas within their bounds, as well as being located within agricultural lands, except for those in the Zubair area. Because of the urban growth all the cultivated areas in the cities have been used for urban functions. In addition, these cities have extended into the surrounding agricultural lands. So, inevitably, some of these lands have become a part of the cities. The same happens when new cities are created and grow up in the agricultural lands within the river levees.

6. Generally, migration of the agricultural population who continue in cultivation, causes new cultivated lands to appear. This situation has occurred in the Zubair area where a number of the agricultural population from adjacent regions (Provinces of Missan and Thiqr), have continued to practise agriculture at some places in this area. Similarly, a number of those who live in the levees of the old course of the Euphrates, have migrated to live in the islands in the Hammar marsh, where tomato production has become important.

7. The dams built, as mentioned previously, to protect the agricultural lands from flood waters in the alluvial plain, are also an important factor. They have contributed to the extension of cultivated areas in this plain, particularly within the river levees. All the palm gardens are protected by such dams, and could not have grown to their present area without them. They have assured that agricultural production can continue in these areas.

Thus it can be seen that the different factors affecting the distribution of cultivated areas are connected in a complex and important interrelation, which makes it impossible to isolate individual factors. Each of the cultivated areas has its own particular human and physical characteristics which have affected its location, although these will sometimes apply to more than one area.

Agricultural Holdings

An agricultural holding is defined as an area used partly or entirely for agricultural production, its administrative and technical affairs being under the management of one or more persons. It should be an independent agricultural unit regardless of property right, legal status, size and location. (43)

According to the results of the 1971 census of agriculture in Iraq, and based on the above definition of an agricultural holding, the number of crop producing holdings in Basrah Region was then 27,547, with a total area of 204,359 mesharas. (44)

Two different types of tenure can be distinguished in the Region. These are privately owned holdings and publicly, or state, owned holdings. The first type is mainly found in the palm groves area, where privately owned holdings constitute 75% of the total number of holdings in this area, divided into 23,984 holdings, largely of between 4 and 10 mesharas, but also including some holdings of up to 1,000 mesharas. The remaining 25% of holdings in this area are state owned. At present the majority of both types are managed by farmers, whereas the owners, whether the state or individuals only share with farmers the annual profits from date production, but they do nothing to help in management of palm groves and their development. In addition, because of the poor financial potential of farmers and their low income from date production, they are unable to develop these groves; also many farmers have left the agricultural industry as mentioned previously. Even the privately owned holdings, managed and cultivated by their owners themselves (farming owners) suffer from the problems facing the other holdings. The percentage of holdings with good management is very low. (45)

The great majority of agricultural holdings outside the palm groves in the whole Region are state owned holdings, particularly in the marshlands and Zubair area. These holdings are managed and cultivated by farmers, and have been distributed by the Ministry of Agriculture and Agrarian Reform. The average size of holdings in these areas is generally small, ranging between 12 and 24 mesharas in the Zubair area, and between 1 and 10 mesharas in the marshlands.

In fact, the size of holdings here is determined by many factors such as physical limitations, the farmer's financial and technical potential, and the number of population compared with the amount of arable lands in the area in which they live. However, compared with the holdings found in the palm groves, in the marshlands and Zubair area the management of holdings is much better, since the income from these holdings is relatively high, which encourages farmers to increase their attention in management and development of holdings. In some cases in the Zubair area there are owners who live in cities such as Zubair City, and depend on labourers to cultivate and manage their holdings. Such holdings are supported by their owners for all requirements of agricultural production and marketing, because of the high income.

At present, not only in Basrah Region, but also in Iraq as a whole, the type of tenure is not a serious problem facing agriculture, since large cultivable areas, both privately and publicly owned, are available. In fact, however, the essential problem is the shortage of labour in the agricultural sector.

Agricultural Cooperatives

To solve the problems facing the agricultural sector and the social life of people in rural areas, agricultural cooperatives have been introduced by the State in the whole of Iraq since 1961 when the first agricultural cooperative association was established. In Basrah Region the number of these associations was only two in 1963, with twenty

members. However, until 1968 agricultural cooperatives were not active or able to achieve their purposes. Since 1968 the motion of organized agricultural cooperatives has been advanced rapidly by the central government in Iraq. The number of cooperative associations in Basrah Region increased from ten, with 1,339 members in 1969, to 34 with 17,163 members in 1980. There are three types of cooperative associations in the Region :

a. Local farmers' cooperative associations. These are formed to offer their services to people practising crop cultivation. In 1980, there were 44 of these, with 14,970 members.

b. Joint cooperative associations. These consist of several local associations, joined to increase the potential and activity of these associations. There were 10 in 1980.

c. Specialized cooperative associations. There are three associations for fishing, consisting of 953 members, and three others for animal breeding, with 1,240 members. (46)

It should be noted that not all the agricultural labour force belong to the cooperative associations. They only include 57.6% of the total labour force, a fact which will be discussed later. In addition, some of the members do not belong to the agricultural labour force, but join these associations to benefit from some of the services they offer to members.

According to State policy, the cooperative activity in Iraq is a socialist one in its nature and purposes. In

the agricultural sector it aims to build collective cooperative relationships instead of individual relationships in rural areas. Therefore, the State aims to establish collective cooperative farms, incorporate farm villages, ensure that some production techniques are possessed by associations, build up cooperative production projects in, for example, breeding livestock, poultry and bee keeping, as well as to offer the input for production and marketing. Moreover, these associations aim to develop all aspects of social life in rural areas.

However, at this stage, the cooperative associations in Basrah Region have not been able to achieve all their purposes, except for some services offered to members, such as providing cash loans, fertilizers, seeds, machinery and marketing facilities. Some small projects have been established by the associations for poultry and bullock breeding. In addition, some associations offer some simple cultural and social programmes. Nevertheless, the cooperative associations in their present conditions are not able to solve the problems facing the agricultural sector in the Region. They suffer from many limitations. The weakness of the role played by the administrative committees of these associations is the most important problem. These committees consist of farmers, including a majority of uneducated people, with no skill in the agricultural cooperatives; these people need a long period of training and experience. Therefore, at this stage of the development of the agricultural cooperatives in Iraq, such farmers are unable to share in these committees. In addition, the financial and technical

facilities offered by the cooperative associations to farmers, are poor considering the different and serious problems which face the agricultural sector.

Labour

The agricultural labour force in Basrah Region consists of cultivators and those who work in animal breeding and fishing. According to the 1977 Census, they totalled 29,815, 11.8% of the total labour force in the Region. However, overlap between different labour sectors is a common economic phenomenon in the Region, as in Iraq as a whole. For example, in Basrah Region some of the cultivators working in crop cultivation practise either fishing or animal breeding, or both. Such a phenomenon is found particularly in the marshlands. Moreover, some people living in rural areas and working in non-agricultural activities, still practise some agricultural activities, such as cultivation, fishing or animal breeding. These people are regarded as non-agricultural in the official statistics. In addition, a high proportion of females share in the agricultural activities, particularly crop cultivation, but are not included in these statistics.

However, the figures shown in Table 4.2 throw some light on the nature of the labour force structure in Basrah Region according to the 1977 Census. This table shows that males constitute 73.9% of the total agricultural labour force, while females are only 26.1%. Based on age groups, 6.9% of the agricultural labour force in the Region are under 15 years, 13.4% are 65 and over and 79.7% are between 15 and 64. This structure means that 20.3% of the total workforce are people not of 'working age', particularly people aged 65 years and over. The proportion of older people has increased greatly recently because of the shifting of the young labour force in rural areas to non-agricultural activities. Only 29.8%

TABLE 4.2

AGRICULTURAL LABOUR FORCE IN BASRAH REGION, 1977

Sex	Age Groups										Un known	Total			
	7-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54			55-59	60-64	65 and over
Males	29	687	873	1,422	1,813	1,506	1,636	1,385	2,701	2,270	1,890	2,183	3,629	15	22,039
Females	10	1,329	868	877	586	525	532	531	801	627	432	301	353	4	7,776
Total	39	2,016	1,741	2,299	2,399	2,031	2,168	1,916	3,502	2,897	2,322	2,484	3,982	19	29,815

Source : Census of Iraq, 1977.

of the labour force, or 8,897 people are between 20 and 39 years of age. Females constitute a significantly high proportion of this total, about 28.3%, which emphasises the low proportion of young males working in this economic sector.

Hired labour is not a common feature in the agricultural sector in the Region, except for specific cases in the marshlands and Zubair area. Hired labour is supplied by the local population in the Marshlands, where it is relatively less important than in Zubair area, where it is supplied by migrants who come from Missan and Thiqar regions, as mentioned previously.

However, the small size of the agricultural labour force and its continuing decrease, compared with the agricultural potential available in Basrah Region, is an important problem facing the agricultural sector in the Region. In addition, a reduction in the quality of this section of the labour force, following the reduction in number of population of working age, leads to a decline in the productivity of the labour force.

Production of Crops

The variety of crops which is produced in Basrah Region can be classified into two categories, basic and non-basic crops, according to the concept of "Economic Base". This concept divides the economic activities into those that export goods and services or bring money into the region from outside, called basic, and those that produce goods and services for consumption by people residing within the region, called non-basic. The activities of the second

category do not bring outside money into the region. (47)

Therefore, the basic activities are most important because they provide the sources of growth for urban centres and their regions. Many measures are used in applying the economic base concept to identify the basic activities. Among the measures that have been considered are employment, payrolls, community income and expenditure, value added by manufacture, sales volume, and physical production. (48)

In the present study, on the basis of the above concepts, the concern is mainly with the basic crops. The volume of sales exported outside the Region is employed as a measure of the crops classification, because we believe that it is the best one in relation to the local conditions in the Region. In addition, the data for applying this measure is available, unlike the data for the others.

Table 4.3 shows the importance of dates, tomatoes, onions, garlic, and squashes which are the basic crops, while Table 4.4 shows that wheat, barley, maize, sorghum and rice are the most important non-basic crops, with various green vegetables, collectively being easily the most dominant in terms of production.

BASIC CROPS

1. Dates

As Basrah's most famous product, it is not surprising that dates are the main crop in the Region, in terms of the amount of cultivated area and production. Table 4.3 shows that the date palms occupy about 70% of the total cultivated area in the Region. Date production of different kinds was

TABLE 4.3 BASIC CROPS IN BASRAH REGION
1978/1979

	Crop	Cultivated Area(Meshara) (a)	% of Total Area in the Region	Production (kg.)
1	Dates	130,000	69.5	80,420,000 (a)
2	Tomatoes	22,741	12.2	64,762,842 (b)
3	Onions	3,421	1.8	2,524,567 (b)
4	Garlic	1,657	0.9	127,033 (b)
5	Squashes	282	0.1	396,011 (b)
		158,101	84.5	

Source : a. Directorate General of Agriculture in Basrah Province (unpublished)
b. Establishment General of Vegetables and Fruits Marketing in Basrah Province (unpublished)

TABLE 4.4 NON-BASIC CROPS IN BASRAH REGION
1978/1979

	Crop	Cultivated Area(Meshara)	% of Total Area in the Region	Production (kg.)
1	Other Vegetables	11,751	6.3	17,668,400
2	Wheat	9,496	5.1	1,899,200
3	Barley	4,917	2.6	2,002,775
4	Maize & Sorghum	1,407	0.8	369,400
5	Rice	1,350	0.7	545,800
		28,921	15.5	

Source: Directorate General of Agriculture in Basrah Province (unpublished)

some 80.4 million kg. in 1979, much more than the total for all the other basic crops. In addition Basrah Region is the most important in the whole of Iraq for dates and date palms. Table 4.5 shows that the number of date palms in the Region was some 6.5 million, 30.8% of the total number in Iraq in 1978, while date production in the Region was 20.7% of the total production in Iraq. Moreover, about 90% of all dates produced in Basrah Region are commercial kinds, in contrast to dates produced in other regions. In 1978, the Region exported some 52.4 million kg of dates for human consumption,* 24.5% of the total exported by Iraq as a whole.⁽⁴⁹⁾ Dates exported for different uses from Basrah Region form more than 90% of total production in the Region.

As shown in Figure 4.1 nearly all the date palms are found in the river levees, particularly along both banks of the whole Shatt Al-Arab, along the Tigris river from Basrah City (new confluence) upstream to Qurna, and extending westward on the banks of the old course of the Euphrates river to Mudaina. Nevertheless, it should be noted that the density of the date palms is different from one place to another within the river levees. It is highest in those of the Shatt Al-Arab river, and those which extend from Mudaina and Qurna south of the old course of the Euphrates river, called Mudaina, Sharrish, and Beay Manssor area. It is lowest in the remaining areas of the levees, because these areas remained without dams until the 1970's. The flow irrigation by a network of creeks and canals extending throughout the palm gardens, and affected by tides, is an important

* This figure includes some of the production in 1977 and 1978.

TABLE 4.5 ESTIMATED NUMBER OF DATE-PALMS BY PROVINCE, 1978

Unit (1000) date palm

Province	No. of Date palms	Fruit-ful	Unfruit-ful	Palm Shoot	Males
Basrah	6,546	5,708	577	134	127
Babylon	3,389	3,684	526	11	74
Kerbela	2,673	2,499	120	5	49
Diala	1,865	1,548	261	19	37
Baghdad	1,644	1,228	301	83	32
Najaf	1,061	1,009	24	3	25
Anbar	987	872	91	9	15
Thiqr	940	781	107	14	35
Qadisiya	867	800	48	1	18
Wasit	662	421	181	47	13
Muthanna	311	257	40	2	12
Missan	263	200	11	10	12
Salah Al-Deen	194	131	51	9	3
Taimeem	1	-	1	-	-
Others	-	-	-	-	-
Total	21,403	18,138	2,363	447	455
%	100.0	84.8	11.0	2.1	2.1

Source : Annual Abstract of Statistics (Iraq), 1978, p.79.

factor contributing to the concentration of date palms in the river levees. In addition, limited areas cultivated with date palms are found in the Islands distributed in the Hammar marsh, and in scattered places within the seasonal parts of this marsh and Zijry marsh. Here, the date production is consumed by people living in these areas. The existence of date palms in these marshes is attributed to the great efforts made by people to create lands above flood water level, on which the palms grow.

Date palm cultivation requires great effort in the different stages of growth. Nevertheless, the work in the palm gardens does not continue steadily throughout the year. It is concentrated on the times of pollination, harvest, and preparation of dates for marketing, (from the end of March to September). However, this fact does not mean that the farmers in these gardens are not working during the rest of the year. It should also be noted that the work is not done by people of a particular age or sex. All members of a farm family who can work share in the various agricultural processes related to the date palms. However, it can be said that no family depends entirely on the date production as a source of income at present.

In Basrah Region, as in Iraq as a whole, date production varies considerably from year to year (see Table 4.6). This phenomenon can be attributed to some physical and biological factors, such as the incidence of irrigation water, dust storms, and diseases, etc.

TABLE 4.6 VARIATION OF DATES PRODUCTION IN BASRAH REGION,
1975-1979

Years	1975	1976	1977	1978	1979
Production (Ton)	152,260	46,900	118,790	34,640	80,120

Source : Directorate General of Agriculture in Basrah
Province (Unpublished)

However, the most important phenomenon affecting production is that the total number of date palms and total areas of lands planted with these trees have decreased continuously. Table 4.7 shows that the total number decreased from some 13.4 million trees in 1952-1953 to some 6.5 million trees in 1978-1979, while the total area also decreased from 222,700 mesharas to 130,000 mesharas. In addition, the average yield is low in the Region (23.3 kg. per date palm) compared with that in Iraq as a whole (38.9), or in the United States (60.0) - for instance.⁽⁵⁰⁾ In the light of the above facts, it can be said that if this problem continues unchecked, an important economic resource will be destroyed in the Region and in Iraq as a whole.

This problem is mainly due to the shifting of the agricultural labour force to other activities, which has left large areas of palm gardens abandoned by their farmers. The remainder of the gardens suffer from inattention from the farmers who are working in other activities while still living in these gardens.

TABLE 4.7 TOTAL NUMBER AND CULTIVATED AREA OF DATE PALMS,
BASRAH REGION, DURING 1952-979

Year	Total Number	Total Cultivated Area (meshara)
1952 - 1953	13,360,000	222,700
1958 - 1959	8,510,000	196,000
1965 - 1966	7,100,000	185,000
1970 - 1971	6,890,000	138,000
1978 - 1979	6,546,000	130,000

Source : Directorate General of Agriculture in Basrah Province (Unpublished)

Moreover, a large number of date palms has been cut or destroyed by urban growth and the creation of non-agricultural activities in the palm gardens. Other problems facing date palms are a part of those facing agriculture as a whole in the Region.

2. Tomatoes

This crop is the second most important in Basrah Region, in terms of cultivated area and production. Table 4.3 shows that in 1979 this area was 22,741 mesharas, 12.2% of the total cultivated area in the Region, and tomato production was some 44.8 million kg. In comparison, Basrah Region is the most important in the whole of Iraq in this field. However, because the data relating to tomato production and cultivated areas in Iraq as a whole in 1979, is unavailable, the comparison is made between Basrah Region and Iraq according to data from 1978. The cultivated area in the Region was

21,589 mesharas, 13.4% of the total tomato growing areas in Iraq. Tomato production was some 23.6 million kg., 53.6% of the total production in Iraq. (51)

It should be noted that most of the tomato production is exported out of the Region. In 1978, for example, only about 4 million kg., 17.1% of the total production was consumed in the Region, while some 19.6 million kg., 82.8% and some 32,000 kg., 0.1%, were marketed in the rest of Iraq and Kuwait respectively. In 1979, the Region exported some 1.5 million kg., 3.4% of total production to Kuwait.

Tomato cultivation took place in some places within the river levees in the Region to produce small amounts of tomatoes for local consumption. However, commercial production of this crop has been introduced into the Region since the beginning of the 1960's, because of increasing demand for tomatoes. It is surprising that this production is not found on the river levees, but in the Marshlands and Zubair area, which are considered as difficult physical environments for agricultural activity. Nevertheless, temperature characteristics provide the main reason for tomato production in the Region in winter, which is the best period for the production of this crop, as the demand is then highest in Iraq, since the tomato is produced in other regions in summer, when their temperature is most suitable.

As mentioned in Chapter one, the Marshlands and Zubair area have two different physical environments. Accordingly, agricultural techniques are also different in these two areas. The agricultural conditions in each of them will now be discussed in some detail.

1. Marshlands. In this area in 1979 tomato cultivation covered 15,800 mesharas, 69.7% of the total area, while the tomato production was some 14.8 million kg., 33.0% of the total production in the Region. Figure 4.1 shows that the areas under tomato cultivation are concentrated in the Hammar marsh in both its seasonal and perennial parts. However, these areas stretch from the old course of the Euphrates southward to include the north seasonal part of Hammar, and all the islands in the perennial part, as well as limited areas in places in its eastern seasonal part.

It is well known that the land level in the marshes is low and flat, covered with flood water for several months in spring and summer. Tomato cultivation usually starts in July, and the harvesting in winter. However, the cultivation time depends on the nature and level of the flood water. When the water level is high the cultivation time is late, perhaps in August. The same can be said about the relationship between the flood water level and the total cultivated areas; when the level is high, the total area is lower, as mentioned previously. In such difficult conditions, the cultivators have treated the land surface and soil with a specific method which is not found in the rest of Iraq. They have made earthy levees of between 1-2 metres width, of different lengths, separated by canals with an average width of about 2 metres along the levees. On these levees the tomato is cultivated. In this way, the land surface is raised far above the groundwater level, and the soil drainage becomes much better. The irrigation water is supplied by the canals between the levees.

The majority of cultivators employ traditional irrigation

techniques. Small pumping machines are used by some of them for this purpose. Nevertheless, the tomato cultivation suffers from a shortage of irrigation water in the last stages of growth, so that the cultivators use groundwater in some places, in spite of its relatively high salinity. However, large agricultural areas are lost as a result of using this method for land cultivation.

The soil in this area is suitable for tomato growth, particularly as it has a high proportion of organic material because of the intensive natural vegetation in the Marshlands. However, some kinds of chemical fertilizers need to be added to the soil. The temperature, in its maximum and minimum limits, is suitable for the different stages of tomato growth over the whole year. In addition, plastic coverings are used to protect the crop from the low temperature in some winter nights. The average yield is about 2,230 kg. per meshara compared with about 2,780 kg.^{*} in Iraq as a whole. However, the average yield in the Region can be considered high, if we take into consideration that a large proportion of each meshara of cultivated area is lost as mentioned above, while the whole meshara is cultivated in the other tomato production areas in Iraq. Moreover, the value of input is low, about IF 38 per kg.^{**}, compared - for instance - with IF 194 per kg. in the Zubair area.

* The average yield of all crops is estimated by the Directorate General of Agriculture in Basrah Province.

** One Iraqi Fils = $\frac{1}{7}$ penny at 1980 prices.

2. Zubair area. Here the tomato crop occupied about 5,000 mesharas in 1979, and the production was some 29.5 million kg., 22.1% and 65.9% of the total area under tomatoes and total tomato production respectively in the Region.

The tomato is cultivated as a main crop in all cultivated lands in the Zubair area. The distribution of these cultivated lands has already been discussed in an earlier section of the present chapter. The Zubair area is very different from the Marshlands in its soil and water resource characteristics. Groundwater is the sole resource of irrigation in this area, differing in its quantity and quality from one place to another. Accordingly the size and location of the cultivated area are determined mainly by this factor. The soil consists mainly of sand, almost totally lacking in organic material because of the desert climate. However, it is a soil poor in components needed for agricultural activity. The dry winds and dust-storms are one of the problems facing agricultural activity. As a result of these facts, production techniques are different in the Zubair area from those in the Marshlands. Moreover, all these physical limitations cause the cost of inputs to be high compared with elsewhere in Iraq. Here the agricultural production requires drilling a well for irrigation, pumping machines, a large amount of organic and chemical fertilizers, plastic coverings, artificial windbreaks, labour, and management, etc. Nevertheless, because of the intensive agricultural system practised in this area, the average yield is very high, about 4,500 kg. per meshara, compared with that in the rest of Iraq. Thus, the value of output is also high, particularly as the demand for tomatoes is high in winter, as mentioned previously. For example, the value of output for a farm with an area of 8 mesharas is about

ID 14,000, with the cost of input about ID 7,000.*

It should be noted that the continuing existence of the farms in their locations depends upon the quality of groundwater. When it changes to a saline water, the farm has to be transferred elsewhere. Usually, this phenomenon takes place 3 or 4 years after the well's coming into use. Therefore, artificial drainage is no use in solving this problem.

3. Other Basic Crops

These crops are onions, garlic, and squashes. Table 4.3 shows that in 1979 they occupied about 1.8%, 0.9%, and 0.1% of the total cultivated lands in the Region respectively. It is remarkable that the cultivation of these crops is concentrated in the Zubair area. They are cultivated as minor crops in combination with tomatoes. Thus, it is difficult to assess the amount of the cultivated lands and the average yield for each of these crops, in spite of the figures shown in Table 4.2. However, the production was some 2.5 million, 127,000 and 396,000 kg. respectively. In 1979, about 10.0% of the onion production and 38.8% of the squash production were exported by the Region to Kuwait, about 20.0% of the production of these three crops was consumed by people in Basrah Region, and the remainder marketed to the rest of Iraq.⁽⁵²⁾ The production conditions and techniques for these crops are the same as those for the tomato production already mentioned.

* 1 Iraqi Dinar = fl.428 at 1980 prices.

NON-BASIC CROPS

Generally, these crops are produced for consumption in the Region. In addition, the Region always imports most of its requirements of these crops. As noted in Table 4.4, the non-basic crops are divided into two groups, cereals and other vegetables.

1. Cereals

These crops are wheat, barley, maize, sorghum and rice. Cultivated lands under cereals covered 17,170 mosharas, 9.2% of the total cultivated area in the Region in 1979. These four crops occupied 55.3%, 28.6%, 8.2%, and 7.9% respectively of the total land under cereals (see Table 4.4). Except for rice, cultivation of these crops is concentrated in both levees of the Tigris river and in the left levees of the Shatt Al-Arab river. Despite the dams protecting these areas from flood water at the present time, several problems, such as soil salinity, labour shifting, and the poor potential of cultivators, have resulted in a decline in their cultivated lands and average yields. In 1979 the production of wheat was only some 1.9 million kg, barley some 2 million, and maize - sorghum 369,000 kg. Most of this production is consumed by the cultivators, the wheat used by the people, barley, maize, and sorghum used as animal fodder, particularly in the areas east of the Tigris river, where a relatively large number of sheep are bred. Pump irrigation from the river is used in cultivation of these crops.

The rice cultivation is concentrated in the Marshlands, particularly in the seasonal part of Zijry marsh (see Fig.4.1). This distribution pattern is attributable to the

nature of the land surface and existence of numerous water courses in this areas. As a result, the flow irrigation needed for rice cultivation is more available here than elsewhere in the Region. However, the flood water level is the most important factor affecting the rice cultivated area. Nevertheless, this area has greatly decreased since 1973, when it covered 5,400 mesharas. The rice production decreased from some 3.2 million kg. in 1973 to 545,800 kg. in 1979. All of the production is used as food for the cultivators.

2. Other Vegetables

Table 4.8 shows that these crops occupied 11,751 mesharas, 6.3% of the total cultivated area in the Region in 1979, divided between eight crops. All these crops are cultivated in the river levees (see Fig. 4.1). Some melon and water melon is also cultivated in the Marshlands and Zubair area within the tomato cultivation lands as summer crops. All the production of these eight crops is consumed by people in Basrah Region, but does not meet demand, so that these crops are also imported into Basrah from other regions in Iraq. The traditional techniques are still employed in cultivation of the non-basic vegetables, including irrigation methods, except for a few small pumping machines used in some places. In addition some chemical fertilizers are added to the soil by some of the cultivators. As with the other non-basic crops, the land cultivated with these crops has decreased continuously, although nearly all cultivators in the palm gardens, particularly in the river levees of Shatt Al-Arab, grow these vegetables.

TABLE 4.8 NON-BASIC VEGETABLES IN BASRAH REGION, 1979

Crop	Cultivated Area (meshara)	%	Production (kg)
Melon	3,945	33.6	7,352,000
Okra	2,392	20.1	2,554,000
Cucumber	1,690	14.4	2,063,000
Green string beans	1,119	9.5	1,174,000
Water melon	933	7.9	1,711,000
Eggplant	881	7.5	2,227,000
Broad beans, green	672	5.7	493,000
Pepper, green	119	1.0	117,000
Total	11,751	100	-

Source : Directorate General of Agriculture in Basrah
Province (Unpublished).

LIVESTOCK

Despite its potential and actual importance, stock rearing in Basrah Region is still undeveloped, where primitive and traditional techniques are employed. In addition, the inadequate physical environmental conditions particularly climate, and poor agricultural potential, have caused shortage of animal fodder. Consequently, livestock production, in both quality and quantity, is low.

Livestock breeding is found in almost all settlements, whether urban or rural, in the Region. However, the purpose of this activity differs from one settlement to another, and likewise between communities.

As noted in Table 4.9, sheep, cattle, buffaloes and goats are the main animals reared in the Region. Although the number of these animals increased during the period of 1971-1978, compared with the number in Iraq as a whole, the proportion, with the exception of buffaloes, is very low. Moreover, the number of these animals is very few compared with the Region's requirement for livestock production. About 10% of the meat and 50% of the milk consumed by people in Basrah Region is locally produced, the remainder is imported whether from other regions in Iraq or abroad. In fact, most of the meat imported comes from abroad as frozen meat. In 1978 the total meat imported to Iraq as a whole cost some ID 1.5 million.⁽⁵³⁾ A meat supply agreement was signed with Australian interests early in 1979 for the supply of 5,000 tons of beef and 7,000 tons of lamb.⁽⁵⁴⁾

Sheep constitute just under 50% of the total number of

animals shown in Table 4.9. Sheep breeding is found only on the river levees and in the Zubair area, and is absent in the Marshlands. The Marshlands area is unsuitable for sheep, as its landsurface is covered by water and tall intensive natural vegetation. Figure 4.2 shows that there are two areas of concentration of the sheep; most of the Zubair area, and east of the Tigris river. In the first area, the number of sheep reared continuously throughout the year, ranges from 50,000 to 100,000. The number of nomads involved remains roughly constant, but, in some years, particularly when the pastures are rich, the number of sheep reared in the Zubair area is increased to about 750,000, as - for instance - in 1978. Most of these sheep are brought over from other regions, particularly Thiqar and Missan. In addition, some flocks are brought over from Kuwait and Saudi Arabia. Sheep brought over from other areas are kept in the Zubair area for two months or more, according to the pasture conditions which differ from year to year. Sometimes shepherds stay with their animals for more than six months if the pastures are rich, in spite of the grass being dry. There are some depressions which remain covered with green grass for a long time because of the available soil humidity.

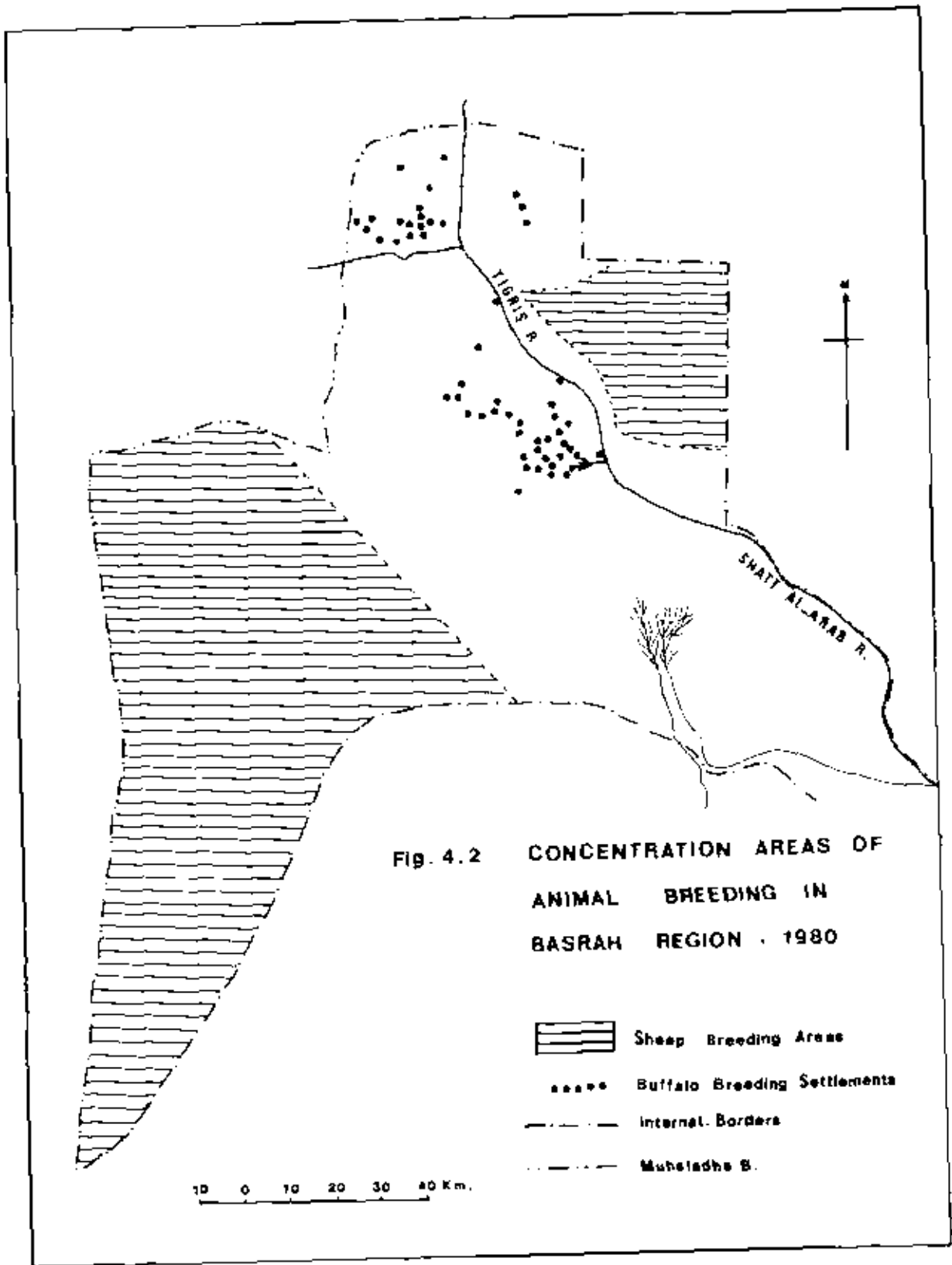
In the second area, the number of sheep reared is about 40,000, and their owners are semi-nomads, so some of them (about 50%) practise agriculture to produce winter cereal crops. Being the most important area for cereal production in Basrah Region, local barley, maize and sorghum are used for sheep fodder, as well as the remnants of the harvested wheat crop. In addition, sheep in this area are moved to

TABLE 4.0 SELECTED LIVESTOCK STATISTICS, BASRAH REGION AND IRAQ IN 1971 AND 1978

Kind	1971 (a)		1978 (b)		% of the Total of Basrah Region
	Basrah Region	Iraq	Basrah Region	Iraq	
Cattle	41,795	1,200,881	80,252	1,697,617	4.7
Buffaloes	15,610	111,887	22,558	170,352	13.2
Sheep	36,751	4,736,113	111,707	9,723,309	1.2
Goats	1,857	1,521,748	11,675	2,058,306	0.7

Source: a. Ministry of Planning (Iraq), Central Statistical Organization, Results of 1971 Census of Agriculture, part I, December 1973, pp.112-125.

b. Annual Abstract of Statistics 1978, op.cit., p.87.



the Zubair area during the spring to the natural pastures which grow after winter and spring rainfall, as already mentioned. Sometimes, shepherds are forced to rent some areas of date palm groves covered with short grass, to keep their sheep.

However, in the Zubair area and in the east of the Tigris river, sheep are kept for their meat and wool. All the wool produced in Basrah Region is used in the local wool handicrafts, whereas most of the sheep meat consumed in the Region is imported, as mentioned previously.

Cattle are the second most important animal in the Region in terms of numbers, comprising some 35.0% of the total number of animals, in 1978 (see Table 4.9). They are distributed in the river levees and Marshlands, except for the Zubair area, in both urban and rural settlements. Cattle in Basrah Region are bred for their milk and milk products, for the personal consumption of people who keep them. However, people living in the marshlands who keep about 10% of the total number of cattle in the Region, sell the milk. In the marshlands, cattle are bred as a minor animal, together with the buffalo, the main animal in these areas. In the river levees, the quality and quantity of the cattle fodder depend on the agricultural potential of the area, and on the financial capacity of the family owning the cattle. Overall, in Basrah Region, as in Iraq as a whole, the milk yield is low. In Iraq the average annual milk production is estimated at 700 kg. per head, compared, for instance, with 4,180 kg. per head in the Netherlands. (55)

Buffalo, in spite of the fact that they comprise just under 10% of all the main livestock animals in Basrah

Region in 1978, are the most important kind of animal in terms of livestock production marketing, as buffaloes are the main source of milk supplying all dairies in the Region. Although the buffalo's yield of meat is very high compared with that of cattle, they are kept only for milk and milk products. A family cannot keep a large number of buffaloes, since their breeding requires much effort and a large amount of fodder. Except for just three settlements specializing in breeding buffaloes, located in the river levees, all others are found in the marshlands, as mentioned previously in Chapter three (see Fig. 3.2 and Fig.4.2). People in all of these settlements feed their animals, both buffaloes and cattle, mainly on the natural vegetation in the marshlands. In addition, other sources of fodder are bought such as dates and waste products from flour mills, particularly during the winter when most of the marshland vegetation is dry.

Goats are less important than other kinds of livestock, as their meat and milk are in less demand. They numbered just 14,675, about 6.4% of the total number of the animals in the Region in 1978 (see Table 4.9). Goat breeding is only found in the Zubair area and on the river levees. Most of them are kept together with sheep, as a minor animal, for their milk and meat.

Poultry

As shown in Table 4.10, poultry in Basrah Region include chickens, ducks, geese and turkeys. These are kept both in rural and urban areas for their meat and eggs, usually on a small scale by families for domestic consumption.

TABLE 4.10 POULTRY IN BASRAH REGION, 1974

Chickens	Ducks & Geese	Turkeys	Others	Total
227,378	59,548	234	7,484	291,644

Source: Central Statistical Organization, Results of Livestock Census by Sample, 1974, Table 8, p.24.

Nevertheless, because of the increase in demand for eggs and chickens, many poultry breeding stations in the Region have been built recently. There are fourteen stations found in different places in the Region, and managed by farmers cooperative associations. These stations produce 117,000 chickens for meat a year. In addition, there are 19 small privately owned stations in the Region, breeding chickens for the same purpose, producing some 20,000 chickens a year. However, most of the demand on chickens in Basrah Region is supplied by foreign frozen chickens, on average about 500 tons a year. In the Region only two major stations breed chickens to produce eggs. The main station is located south-east of Zubair City, as mentioned in the previous chapter, and the other are in Shatt Al-Arab City. They are managed by the Government (public sector), and produce about 184 million eggs a year. The demand for eggs differs from season to season. It is lowest in summer since eggs are affected by the high temperature in this season, and a high proportion of people have not got refrigerators to keep eggs. Consequently, when the supply of eggs is greater than the demand,

Basrah Region exports the surplus to Thiqar Region. Conversely, when the demand increases some eggs are supplied from Missan Region. All poultry breeding stations in Basrah Region feed chickens on concentrated fodders imported from the fodder factories located in Baghdad City, and managed by the government (public sector). In 1980 there was a fodder factory under construction in Basrah Region, located close to the poultry breeding station southeast of Zubair City, which will lower fodder costs in future.

In the light of the above facts, it can be seen that livestock and poultry suffer from some major problems. The shortage of food is the most important because of the arid climate and the absence of artificial pastures. In addition, the cost of imported fodder is high. The primitive and traditional techniques of animal breeding are the second problem, and the third problem is the shifting of labour specializing in animal breeding to other economic activities, which is, at the same time, a result of the other problems facing animal breeding.

The veterinary medical services have been much improved recently by the government in the Region. In 1980 there were twelve veterinary centres distributed in the cities, offering medical services to all kinds of animals throughout the Region. There were fifteen veterinary surgeons, working in these centres, as well as eleven in the poultry breeding station located southeast of Zubair City. The medical services reach animals everywhere in the Region by mobile veterinary teams. These services cover about 90% of buffalo and cattle, and about 75-80% of sheep in the Region.

Fishing

Basrah Region is the most important one in Iraq as a whole in terms of fish production, as the extensive marshes and large network of rivers and channels, are suitable habitats for a variety of fish. In addition, Basrah Region, being Iraq's only coastal province, is the only one able to exploit the Arab Gulf's considerable marine resources.

There are three main fishing areas for the Region. Firstly: the inland freshwater area including marshlands and the Tigris, Euphrates, and Shatt Al-Arab rivers, in which many species of fish are found. The average number of fishermen is estimated at some 4,000 in these areas, 13% of the total agricultural labour force in the Region. In 1979 the amount of fish caught in freshwater and sold in local markets, was some 1.4 million kg. Although these figures have been taken from the official establishments responsible for fishing in the Region,⁽⁵⁶⁾ it should be said that the real number of fishermen and amount of fish caught are unknown. Many people catch fish without a fishing licence, particularly during the main fishing season, in spring. In fact, there are no fishermen practising fishing in this area throughout the year at present. Although the amount of fish caught differs from time to time, a large number of fishermen consume all or most of their catch. Moreover, a high proportion of the production is sold behind the back of those establishments, whether in or out of Basrah Region, to sell for higher prices or escape from tax. In these areas, traditional techniques are still employed to catch fish. Sometimes, poisons are used for this purpose

in some places, particularly in marshlands, in spite of the Government control and legal penalties.

The Iraqi territorial waters in the Arab Gulf is the second fishing area. There is a cooperative association specializing in fishing in Fao City, which fishes in this area. At present, the number of its members is 897 as well as their children who help their parents and learn fishing techniques at the same time. This association is one of the mixed sector establishments, including both public and private sector. It is supported by its members and the State, and possesses 70 steam boats for fishing. The loading capacity of each one ranges from 20-30 tons. The total catch production for this association was some 1.3 million kg. in 1979.⁽⁵⁷⁾ The fishing industry in this area is more regular and developed than that in the previous one.

Thirdly, there are the fish caught by the Iraqi national fishing fleet on the high seas, which are an important resource for fish in Iraq as a whole. The data concerning the nature and potential of this fleet are unavailable, except for the amount of fish caught which was some 8 million tons from January to August of 1980.⁽⁵⁸⁾

Except for this last category, all fish caught in inland freshwater and territorial waters are sold in the local markets in Basrah Region, where the cities are centres for these markets. Basrah City is the main centre for fish sales in the whole Region. Nevertheless, the total production of fish in Basrah Region is not enough to supply the demand in the Region. Only a small proportion of the fleet production (about 13.5% of the total in 1980) is sold in Basrah Region,

and the remainder marketed to the rest of Iraq, since this fleet has been established by the Government to supply the demand for fish in the whole of Iraq including Basrah Region.

The fishing industry in Basrah Region suffers from many problems. Water pollution is the most important at present, because of the large modern factories built on the Tigris, Euphrates and Shatt Al-Arab rivers in the Region and Iraq as a whole. Shatt Al-Arab is the river most affected by this problem, as it forms the main drainage course of surface water in Iraq to the Arab Gulf. On this river itself two large chemical factories, paper factory and fertilizer factory, are located. All these factories throw a large quantity of waste into the rivers, and some of this waste include poisons which can kill all organic life in the water. In addition, intensive traffic of ships and steam boats in the Shatt Al-Arab add to the pollution. By this river, fish migrations take place between inland surface water in Iraq and the Arab Gulf. Consequently, this migration has nearly stopped, and seafish, which is an important food resource particularly for southern Iraq, have been unable to enter inland surface water.

The use of poisons and other traditional techniques in fishing is the second important problem, which causes the exhaustion of the fish resources both in the Region and Iraq. Although there is government control, these fishing methods are still employed at the present time. The unavailability of adequate transport and storage facilities are other problems facing the fishing industry. So, all these problems need to be solved to develop the fishing industry in Basrah Region

Region and Iraq as a whole. All factories located on the rivers have to treat their wastes chemically before they are thrown into the rivers, in order to prevent water pollution. The use of poisons and other traditional techniques in fishing should be stopped and replaced by modern techniques, and government control has to be more effective in this field. In addition, adequate transport and storage facilities for fish should be provided in Iraq.

Conclusion

Despite the significant plans introduced and the great sums spent to develop the agricultural sector in Iraq over the last three decades, and particularly during the 1970's, this sector is still backward and the weakest one. However, the importance of agriculture has greatly decreased since the late 1950's, in terms of area cultivated, labour forces, productivity, its percentage contribution to the gross national product, and of exports. This is due to many physical and human problems such as soil salinity, the irregular discharge of surface water, the primitive and traditional techniques used, and inadequate conditions in the rural areas, as well as the migration of the work force which is both as a result of these other problems and at the same time is itself one of the problems facing agriculture.

The above problems have decreased the cultivated area in Basrah Region to only 0.4% of the total area of the Region. Moreover, these are unevenly distributed throughout the Region, concentrated mainly (84.4% of the total) in the river levees which form only about 13% of the total area of the Region.

The distribution of the cultivated areas is affected by several factors which can be divided into two groups, physical factors and human factors. The first group, which is the most important, includes topography, water resources, and soils. The second group includes the cultural level of the agricultural population, the techniques used, population distribution, labour migration, government policy, urban growth, and the dams built to protect the agricultural lands from flood waters in the alluvial plain.

There are two different types of land tenure in Basrah Region: privately owned holdings and state owned holdings. The first type is mainly found in the palm groves area, while the second one is mainly found in other areas particularly in the Marshlands and the Zubair area. The average size of the holdings in both groups is small, ranging from between 4 and 10 mesharas in the palm groves to between 1 and 24 mesharas in other areas.

Although the concept of agricultural cooperation in Iraq has advanced rapidly in recent years, the cooperative associations still suffer from many limitations, in addition to the serious problems facing agriculture which are greater than the potential of these associations at present.

In Basrah Region the small size of the agricultural labour force and its continued decrease, compared with the agricultural potential available in the Region, is a serious problem facing this sector.

A variety of crops is usually produced in Basrah Region. However, the importance of some crops, such as wheat, rice,

barley, and maize, has greatly decreased, and changed from cash crops which were marketed outside the Region, to crops produced for consumption in the Region. Other crops, such as tomatoes, onions, garlic, and squashes, have become cash crops marketed in the rest of Iraq and Kuwait, while they used to be entirely consumed in the Region.

Stock rearing in Basrah Region is still undeveloped, where primitive and traditional techniques are employed. In addition, the inadequate physical environmental conditions, and the poor agricultural potential, have caused shortages of animal fodder. Consequently, livestock production, in both quality and quantity, is low. About 10% of the meat and 50% of the milk consumed by people in the Region is locally produced, while the remainder is imported.

Basrah Region is the most important one in Iraq in terms of fish production, although the total production of fish in the Region is not enough to supply the local demand. The fishing industry in this region suffers from many problems such as water pollution, poisons and the traditional techniques used in fishing, and the unavailability of adequate transport and storage facilities.

In order to develop the agricultural sector, intensive efforts need to be made to solve all the problems facing this sector, and to exploit the available local potential. Such efforts should include : creating drainage projects to solve the soil salinity problem; more effective control of the discharge of surface water including building dams and irrigation canals, replacing the primitive and traditional

techniques used in this sector by modern techniques. In addition, developing social life and providing adequate conditions in the rural areas are essential measures to prevent or to reduce the migration of the work force, and to enable the rural population to work in adequate conditions. The financial and technical facilities offered by the government to the people working in the agricultural sector are also necessary, since the majority of these people are unable to obtain such facilities out of their own resources.

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CHAPTER FIVE

THE INDUSTRIAL SECTOR IN BASRAH REGION

Recently, industry has developed greatly throughout Iraq, and Basrah Region has become the most important industrial region in the country. As a result, industry now constitutes a main economic sector. The present chapter is devoted to a discussion of manufacturing industry in many respects. The first part of this chapter deals with the important subject of the development of industry, identifying its factors, trends and problems, which all have a bearing on its present and future state. The second part studies different aspects of the present state of industry : industrial structure, the major industries, private and public sectors, labour, and the industries' distribution. Also an attempt will be made to shed light on potential future progress.

Industrial Development in Iraq

As shown early in the preceding chapter, in the 19th century the most important economic factor in Iraq was the growth of foreign trade. The Iraqi market expanded as trade increased and imports kept pace with exports. The expansion of exports led to the growth of certain export-processing industries from products such as dates, wool, and cereals. The growth of imports gave local handicraft industries increased competition. The export-processing plants were Iraq's first non-handicraft establishments. They used some mechanical equipment, and their scale or organization was appropriate for a world market at that time. They were set up by foreign traders, largely by British and British Indian

traders. In addition, during the 1860's two Turkish governors of Baghdad set up there a woollen textile factory organized in a Western style,* which used homespun wool to produce army uniforms. (1)

During World War I attempts were made to set up local industries. These were motivated by the desire both to ensure adequate supplies for the British army, and hence to reduce its dependence upon imported goods, and to supply local demand. The technical knowledge was available in the British army, but a ready market was lacking and funds were insufficient to set up local industries at this time. (2)

In general, during the period of 1920-1950,** the encouragement of local industry by the government, took two forms : firstly, through the enactment of laws for the encouragement of industries by allowing certain exemptions from income tax, custom duty, property tax, and allowing use of state land. Secondly, the state-owned Industrial Bank was allowed to establish industrial enterprises, sponsor and subscribe to the capital of private and public companies, and to extend short - and long-term loans.***The contribution of the Bank toward industrial development was modest, limited, and conservative. (3) The value of total loans offered by this bank from 1947/1948 to 1950/1951, was ID 486,000, of which 76.6% went to Baghdad Province, and 1% to Basrah Province (Region). (4) The investment by the Government went

* This factory was set up by Namiq Pasha in 1864 and expanded by Midhat Pasha in 1869. See K.W.Langley, p.288.

** Present-day Iraq became a political entity in 1920. The first Iraqi Government was formed under the British Mandate in 1921 and achieved independence in 1932.

*** Industrial Bank was not set up until 1946. See Metachlan,K.S., pp.87-88.

almost entirely into social overhead capital; there was no direct Government investment in the industrial sector. The direct contribution of the Governmental development programmes to this sector was the provision of funds for the Bank. In the 1934-38 programme 2% of total allocations was devoted to the establishment of state industrial projects and the encouragement of private industries. This is one of the reasons why the share of industry in total investment was low, 5 per cent for the period of 1933-50.⁽⁵⁾ Generally, it can be said that the industries in Iraq before 1950 were characterized by slow progress, limited number, and small size. Many, such as cotton textiles, grain milling, cement, vegetable oil, and leather industries depended upon local raw materials.⁽⁶⁾ It was clear that these industries were concentrated in Baghdad Region, or, in fact, surrounding Baghdad City. This was because Baghdad is the capital and commercial centre for Iraq, there is a large market and labour forces, and there were readily available transportation, electric power and other infrastructure which were much better than in any other city or region in Iraq. In 1950 perhaps as many as 60,000 people were engaged in industrial production (other than oil), virtually all of them employed in small undertakings where the work was done largely by hand and productivity was accordingly quite low. Probably about 2,000 were working in what might be characterized as modern industrial plants.⁽⁷⁾

The beginning of developmental efforts in Iraq can be dated back to 1950-51. The main stimulant to this was an increase in oil revenues as a result of increased production,

from 4 million tons in 1949 to about 7 million tons in 1950 as the international demand for oil started to increase⁽⁸⁾, and of the agreement of 1952, according to which the government began to receive, annually, 50% of the profits resulting from the operations of the oil companies in Iraq.⁽⁹⁾ Thus the idea of a separate investment budget was conceived, and the Government decided to allocate the whole of the oil revenues to this budget. Establishment of the Development Board in 1950 and the setting up of the Ministry of Development in 1953 gave an organizational basis for national development planning, albeit on an imperfect basis. The preoccupation of successive governments from 1950 was with agriculture, water control, irrigation and drainage projects. Industry received little priority. The five Year Programme adopted by the Development Board for the period 1951-1955 virtually ignored the claims of industry and left developments there to the private sector. A new five year investment programme was devised for the years 1955-59. Once again, the emphasis of the plan was on water control and irrigation projects or infrastructural schemes, and there was no real improvement of the relative position of industry where low plan allocations and poor levels of disbursements continued.⁽¹⁰⁾ The total allocations was ID 155.4 million and 476.2 million for the two programmes respectively. The financial allocations made to industry were ID 31.1 and ID 48.1 million, or 20.0% and 10.1% of the total allocations. While the actual expenditures on industry were 2.6 and ID 28.4 million, or 8.4% and 59.0% of the total allocations to industry in these two

programmes.⁽¹¹⁾ Nevertheless, some factories were built up by the Government during the 1950's, such as a bitumen refinery, a cotton spinning and weaving mill, and two cement plants. All of these industries were built in the northern part of Iraq, as well as the oil refinery south of Baghdad. During the 1950's the Industrial Bank had played a limited role in developing industry, because its financial resources were limited : during the period 1950-1958, its paid-up capital only increased from one million dinar to ID 3.7 million.⁽¹²⁾ Moreover, the conditions in that period did not encourage investments of local private capital in industry. People preferred to invest their own capital abroad, or in trade, or to own more lands and properties.

After the Revolution of the 14th July, 1958, there was a change in orientation towards developmental efforts. The social consequences of development, or the lack of it, was better appreciated. In the matter of sectoral allocation of investments and project selection, it was felt that industrial development was equally important for Iraq, and unless attention was paid to all the inter-related projects and sectors, a single sided effort was not likely to succeed. The importance of private sector investment in industry was also realised. Private investment in industry was encouraged through tax concessions, protection policy and industrial bank loans. Changes were made in foreign trade policy and trade agreements were concluded with the socialist countries. An overall strategic aim of planning was defined to be reducing dependence on oil. Thus, for the first time there was an integrated attempt at planning. Accordingly, the Development Board was abolished and a Planning Board and a

Ministry of Planning were established in 1959.

In December 1959, a four-year provisional Economic Plan (1959/60-1962/63) was introduced. This plan anticipated a total investment expenditure of ID 392,2 million. Most of the D.B. projects (under construction) were included in this programme. However, industry only got 12.4% of the total anticipated investment.⁽¹³⁾ The provisional plan lasted only for two years and was superseded by the Detailed Economic Plan (1961/62 - 1965/66) in 1961, by which time only ID 11 million had been spent on industrial projects.⁽¹⁴⁾ The Detailed Plan, in contrast to earlier programmes, emphasised industrial development. Total anticipated investment was ID 566.3 million, out of which 30.0% allocated to industry. But the actual expenditure on the industrial sector was ID 38.3 million.

In July 1965 a new economic plan for the years 1965 - 1969 was introduced. The total allocation for this plan was ID 668.1 million, out of which ID 187.2 million, 28.0% was allocated to industry, which was more than those to other sectors. However, the actual expenditure on industrial projects was ID 100.1 million, 53.5% of the total allocation for industry.⁽¹⁵⁾ Although the economic plans introduced in the 1960's did not achieve all their goals, some progress had been made in the industrial and other sectors. The relative importance of the public sector in capital formation in Iraq rose from 50.2% in the period 1957-63 to 57.5% in that of 1965-69, as a result of the nationalisation programmes in 1964.⁽¹⁶⁾ Accordingly, the 27 largest industrial establishments in Iraq, excluding foreign oil companies, were

transferred into the public sector, which had a total capital of ID 27.6 million.⁽¹⁷⁾ Thus, by the late 1960's the foundation of the modern industrial sector was quite broad, both regionally and nationally comprising many modern factories.

After the 1968 Revolution, development efforts have started towards a comprehensive plan with well integrated social, economic and physical targets.⁽¹⁸⁾ In 1970 the National Development Plan was introduced. The investments allocated for this plan were ID 1,932 million, out of which ID 391 million, (20.2%) was allocated to industry - more than to any other sector.⁽¹⁹⁾ Where this plan emphasised development in the industrial sector, particularly in chemical industries, oil and gas projects, and electricity power generating projects, improvements were also provided for in other industries. The plan also emphasised the geographical distribution of the new industries among different regions in Iraq, and some of these industries were set up in Basrah Region.⁽²⁰⁾ The rapid rise in Iraq's oil income after October 1973 led to a hastening of project execution. Expenditure on industry rose sharply during the plan period, from ID 21.2 million in 1970/71 to 184.1 million in 1974/75, and ID 281.7 million was spent on industry by the interim nine month investment budget which was begun in April 1975.⁽²¹⁾

In the light of these emphases, it is not surprising that the industrialization programme within the 1970-1980 plan was the plan's main economic preoccupation. Industry,

therefore, was the main area of investment by the state during that plan. Allocations to industry in the 1976-80 plan totalled ID 5,770 million, 38% of total investment programme of the plan. Actual disbursements were claimed to match forecasts. In the five year period ending in November 1979 it was officially stated that ID 4,276 million was spent on industrial development. This same five year span saw the petrochemicals and chemicals industry take ID 880 million of investment funds at the disposal of the state while industrial items for the petroleum sector, including refineries, gas processing plants and other facilities, took ID 1,100 million. An electrical generating plant was allocated ID 950 million. Industries representing genuine diversification away from the oil sector performed relatively modestly in comparison with the above items, with only 31.5% of allocations; these included construction materials, food processing, mineral extraction (non-oil), textiles, timber and paper products, and engineering goods industries. Over the time span of the 1976-80 plan there were subtle changes of stress within the industrialization programme. While the largest share of funds was allocated to petrochemicals, iron and steel, and automobiles, there was a growing concern with small scale industry to provide a greater measure of self-sufficiency in processed foods and consumer goods. (22)

As a result of the execution of the above mentioned industrialization programmes, Iraq has emerged as an important industrial state within its regional international context. Different heavy and light industries have been

set up, which are distributed among all the regions of Iraq. Basrah Region has become the most important in this field, thus replacing Baghdad in a dramatically short period of time. The nature and impact of this rapid evolution will now be analysed, paying particular attention to the particular industries now found in Basrah Region, and their role in the overall industrial/economic development of Iraq.

Industrial Development In Basrah Region

Many characteristics have made Basrah Region the most important industrial region in Iraq. These are:

1. The geographical location of Basrah Region is the most important : possessing its only coast has given it inherent advantages for industries associated with import and export. Most Iraqi foreign trade, imports and exports, passes through the ports found in Basrah Region; this will be discussed in Chapter six.
2. Because of the trade that passes through Basrah Region forms the southern terminal of the land and water routes and railway lines in Iraq.
3. The Region contains a great reserve of crude oil and natural gas, providing energy resources and raw materials for the chemicals and petrochemicals industry (more details about crude oil and natural gas will be considered in Chapter six). In addition, it contains great quantities of mineral salts, sands and limestone.
4. There are plenty of water resources, both surface and ground water in the Region which is important for industry.

5. In Basrah Region the extensive natural vegetation in the marshlands form the main raw materials for some industries, particularly, at present, reeds for the paper industry and bulrushes for the compressed sheet industries.

6. Basrah Region is the main producer of dates and tomatoes in the whole of Iraq, which are the raw material for many food processing industries. In addition, the Region could produce other agricultural products, particularly when those agricultural problems discussed in Chapter four have been tackled.

7. At present, Basrah Region possesses the most important fish resources in Iraq, as previously mentioned, which could be improved to become the basis of associated processing industries.

8. In Basrah Region, particularly in the Zubair area, there are vast state owned lands which are uncultivable, which could be used for industrial purposes, at no cost if all industrial establishments built here were set up by the government.

9. The infrastructure available in Basrah Region encourages industry to be developed. This infrastructure includes roads, railways, ports, telecommunication,* and electricity. In the Region there are two large stations generating electricity, one in Basrah City itself, with a total capacity of 280 million kwh, the other 25 km north of this city with a total capacity of 800 million kwh (see Fig. 5.1). These two

* Transport will be discussed in detail in Chapter 6.

stations are fuelled by natural gas piped from oil fields found in the Zubair area. They are joined to the other power stations in Iraq by the national network to supply the whole country.

However, despite the importance of the above factors in industrialization, industry in Basrah Region remained backward until the late 1960's, as a part of the general development process in Iraq, as mentioned previously.

Prior to those developments associated with government planning, only such industries as export processing industries and ship building and repair, had been able to take advantage of Basrah's locational characteristics. The development of these industries, in addition to the expansion of activity in Basrah port, resulted in economic development in the Region including creating and expanding many industries to supply local demand. These included grain milling; ice and soft drinks production, construction materials such as doors, windows, bricks and gypsum production; and establishments for repairing vehicles and agricultural machines. Nevertheless, until the development planning started after 1958, industry continued to be concentrated in Baghdad Region, so that other regions, including Basrah Region, were less important in this field, as will be mentioned later.

In view of the fact that the first industrial census in Iraq was taken in 1954, study of industrial development in Basrah Region will be concentrated on the period between 1954 and 1980 according to the available data. To measure the industrial development some indices have been used, such as the value of input and output, value added, wages paid,

employees, and number of establishments. This study includes the manufacturing industries, and excludes the oil industry which will be treated separately.

The Industrial Sector in 1954

The first industrial census of 1954 revealed the following characteristics of Basrah Region's industrial structure.

1. The total number of industrial establishments was 1,138, as shown in Table 5.1, forming 5.3% of the total establishments in Iraq. In comparison, Baghdad Region had 4,701 establishments, 21.0% of the total number, which means that there was a marked concentration of industry in this region because of the available capital and large market.

2. The total number of persons employed in industry in the Region was 13,723, 16.0% of the total in Iraq, compared with 37.2% in Baghdad Region. This relatively high number of employees for the number of establishments in Basrah Region shows this region had some large establishments already discussed, compared with other regions, except for Baghdad Region, since in these regions the industrial sector was dominated by small handicraft industries.

3. In 1954, the total paid wages in the Region was ID 697.3 thousand, 12.4% of the total in Iraq, compared to 59.0% in Baghdad Region. The value of the paid wages in Basrah Region formed 51.0% of the value of input in the industrial sector. However, this proportion does not mean that the level of wages was high, but rather that the number of employees was rising, and the cost of the other input elements was low.

TABLE 5.1
INDUSTRIAL STRUCTURE IN BASRAH REGION IN 1954

Industry	No. of Est.	No. of Employees	Wages paid Thous. ID	Value of Output Thous. ID	Value of Input Thous. ID	Value added Thous. ID
Foodstuffs, beverages and tobacco	276	8,812	284.36	1394.90	764.65	610.25
Textiles, ready-made, clothes and leather	392	1,317	49.86	552.03	129.89	422.14
Wood products and furniture	139	301	22.24	70.27	33.44	36.83
Paper, printing and publishing	6	52	6.16	37.7	15.81	21.88
Chemicals and oil products	1	77	-	-	-	-
Non metallic mineral products	41	1,348	106.14	259.19	32.70	226.49
Basic metal industries	-	-	-	-	-	-
Manufactured metal prods. machinery and equipment	185	908	99.81	195.43	76.39	119.04
Other manufactures and non classified	98	905	128.73	650.66	318.27	332.39
Grand Total	1138	13,723	697.30	3140.17	1371.15	1760.02

Source : Ministry of Economics, Principle Bureau of Statistics, Report on the Industrial Census In Iraq for Year 1954, Baghdad, 1956, pp.64-78.

4. The total input in Basrah Region was valued at ID 1,371 thousand, forming 4.3% of the total in the whole of Iraq, compared with 61.0% in Baghdad Region.

5. The value of output in the Region was ID 3,140 thousand, 8.0% of the total output in Iraq, while it was 50.0% in Baghdad Region.

6. The value added by industry in Basrah Region amounted to ID 1,769 thousand, forming 24.0% of the total value added in Iraq, compared with 51.2% in Baghdad Region.

The above figures confirm the high concentration of industry and related indices in Baghdad Region, which resulted in reducing the relative industrial importance of the remaining regions in Iraq. If Baghdad Region is excluded, the relative importance of Basrah Region is increased to 6.4% of the total establishments, 24% of the labour force, 29% of paid wages, 11% of value of input, 20% of value of output, and 48% of value added in the whole of Iraq. (23)

Nevertheless, the industrial establishments were unevenly distributed in Basrah Region. They were mainly concentrated in Basrah City itself, where the above indices formed 63%, 68%, 70%, 84%, 81% and 79% of the total in the Region. It should be noted that the large industrial establishments were concentrated in that city, which at that time contained some 30% of the Region's population, and this is the reason why the proportion of number of establishments was less than the other indices. This concentration is attributed to: firstly, the relatively large local market in the city because of the size of population and high standards

of living compared with those in the rest of the Region. Secondly, Basrah City is the main commercial centre for the whole Region in addition to the adjacent regions, as will be mentioned in Chapter Eight.

Industrial Structure in 1954

To classify industries in Basrah Region, the international classification (ISIC) is employed, which is used by the Ministry of Planning and Ministry of Industry and Minerals in Iraq. Accordingly, industries in the Region can be classified into nine broad groups as shown in Table 5.1. According to the industrial census for 1954, some comments can be made on the industrial structure in Basrah Region, compared with that in Iraq.

1. The textile, ready-made clothes and leather industries were the most important in the number of their establishments in the Region, forming 34.48% of the total number, followed by foodstuffs, beverages and tobacco industries at 24.27%. However, the first of these industries were mostly on a small scale or handicraft shops. Consequently, the proportion of labour force employed in these industries was 9.6% of the total in the Region, unlike the second industries which employed 64.22%, because they included the dates export - processing industry which usually employs a large number of workers, and Basrah Region is the most important in this area.

2. The foodstuffs, beverages, and tobacco industries, which included mainly the export - processing industries, were the most important in terms of number of workers, wages paid, value of input and output, and value added, which

confirm the relative importance of these industries in the Region.

3. Among the important industries, non-metallic mineral products appeared by the proportion of the number of workers, wages paid, value of output, and value added, 9.82%, 15.22%, 8.25% and 12.8% respectively. These industries were represented by brick-making plants.

4. The manufactured metal products, machinery and equipment industries were also important, forming 16.37%, 6.62%, 14.31%, 6.23%, 5.58%, and 6.73% of the total of the indices shown in Table 5.1 respectively. They consist mainly of handicraft industries on a small scale, including motor repair. However, ship building and repair was the most important, particularly in terms of number of workers and value added. The average number of workers was 110 compared with 5 for the whole group of these industries, and the value added formed 62.3% of the total for this group. This is attributed to the geographical location of the Region.

5. As noted in Table 5.1, there are no basic metal industries within the industrial structure in the Region in spite of their importance in this structure and in the overall economy.

6. Although the wood products and furniture industries formed 12.23% of the total establishments, proportions of the other indices related were very low, because this sector was dominated by small handicraft industries, based in workshops, employing just 2.2% of the total labour force in industry.

7. The chemical and oil products industry consisted only

of Muftia Refinery found in Basrah City employing 77 workers. No more data was available to show the indices for this refinery.

By comparison, in Iraq as a whole, the textiles, ready-made clothes and leather industries were the most important in terms of number of establishments and workers, forming 42.57% and 28.58% of the total. The foodstuffs, beverages and tobacco industries were the second, forming 19.32% and 26.63%, while the manufactured metal products, machinery and equipment industries were the third, with 18.76% and 22.16% of the total. In terms of the value added these last industries were the most important, contributing 28.16% of the total value added in Iraq, followed by foodstuffs, beverages and tobacco industries with 27.4% and textiles, ready-made clothes and leather industries with 21.51% of the total. Whereas the other industries were less important, particularly the basic metal industries which formed 0.31%, 0.4% and 0.33% of the total of establishments, labour force, and value added respectively ; these consisted of small workshops of casting and forging, concentrated mainly in Baghdad City.

However, the industrial structure, both in Basrah Region and Iraq as a whole, was backward compared with the international scale at that time, as most industries were handicrafts. Nevertheless, already Basrah Region, as already mentioned, was the most important in the field of export-processing industries.

Industrial Development 1954-1980

This stage marks the transformation from craft-dominated and other small scale activity to the large industrial establishments, and therefore the emphasis here is clearly on the latter. Modern plants became the most important not only in terms of the size of the labour force, but also in the amount and value of their outputs. The first industrial census to take account of small industrial establishments in Iraq took place in 1962, when division was made between small and large establishments, unlike the previous census of 1954. According to the industrial censuses in Iraq, a large industrial establishment is one at which 10 or more persons are employed. This criteria is also still used by the Central Statistical Organization. Accordingly, 1962 should be the base year for studying industrial development instead of 1954. However, to know the nature of that development during the period 1954-1962, it is necessary to make a brief comparison between the industrial status (including both small and large establishments) of 1954 and that of 1962, as follows:

1. The number of establishments in Basrah Region increased from 1,138 to 1,303, an increase of 15%, or annual growth rate of 1.7%* as compared with rates of 2.5% and 0.3% for Iraq as a whole.

2. The number of workers decreased from 13,723 to 11,018, (25%), while in Iraq it increased by 29%. This can be

* The annual growth rate was calculated by the following formula:

$$r = \left(t \cdot \frac{P_t}{P_o} - 1 \right) \times 100$$

attributed to the decrease of activities in the dates export-processing plants as a result of reasons concerned with dates trade and production, and to some of the workers employed in these plants transferred to non-industrial sectors. In fact, most people working in the date plants are unskilled and most of the processes in these plants are simple and done by hand. In addition, the work in such plants lasts only for three or four months a year.

3. The value added increased by 209%, with an annual growth rate of 15.1%, compared with 150% and 11% in Iraq.

The industrial development that took place in Basrah Region during the period 1954-1962, can be attributed to several factors. During that period important centrally sponsored infrastructures were set up, such as Najibia Electricity Generating Station, Muftia Refinery and Basrah Silo, and transportation improved. In addition, the standard of living rose in the whole of Iraq, and also because of increased employment opportunities in the Region as a result of the expansion of Basrah Port and Basrah Oil Company. In this company the number of workers rose from 1862 in 1950 to 3,688 in 1960. The Industrial Bank helped to develop the private industrial sector by allowing the total loans borrowed to increase (at current prices) from ID 27,499 during 1947-1954 to ID 164,053 during 1954-1962, a rate of increase of 497%.⁽²⁴⁾

In the light of the industrial development in Iraq mentioned in the earlier part of this chapter, 1968 can be considered the dividing year between two stages of industrial

development, as the essential development has taken place since 1968 both in Basrah Region and Iraq as a whole. In this section of the present study, the period 1962-1968 is the first stage, while the period 1968-1980 is the second.

A. Industrial development 1962-1968

By comparing Table 5.2 and Table 5.3, some comments can be made on the industrial development that took place during that period :

1. The number of establishments increased by 23.4%, an annual growth rate of 3%, compared with 28% and 4% in Iraq.
2. The number of workers decreased by 9.0%, an annual growth rate of -2.4%, while in Iraq it increased by 15.4%, with a growth rate of 2.4%.
3. The wages paid rose by 2.4%, an annual growth rate of 1%, compared with 43% and 6% in Iraq.
4. The value of output declined by 29%, an annual growth rate of -4.1%, while in Iraq it rose by 70%, with a growth of 9.3%.
5. The value of input decreased by 16%, an annual growth rate of -3%, compared to 54% and 7% in Iraq.
6. The value added by industry decreased by 43%, an annual growth rate of -5.8%, compared to 88% and 11.1% in Iraq.

On the basis of the above facts, it can be said that, except for the number of establishments and the value of wages paid which increased, all other indices decreased during 1962-1968. By contrast, the industrial development in Basrah

TABLE 5.2 INDUSTRIAL STRUCTURE IN BASNAH REGION IN 1962*

Industry	No. of Est.	No. of Employees	Wages paid Thous. ID	Value of Output Thous ID	Value of Input Thous. ID	Value added Thous. ID
Foodstuffs, beverages and tobacco	47	5,359	755.27	6426.88	3095.66	2831.22
Textiles, readymade, clothes and leather	2	37	1.42	59.22	53.89	5.33
Wood products and furniture	7	114	22.05	78.1	50.45	27.65
Paper, printing and publishing	-	-	-	-	-	-
Chemicals and oil products	1	101	47.85	1494.5	184.63	1309.87
Non metallic mineral products	37	630	91.53	979.49	86.84	892.75
Basic metal industries	-	-	-	-	-	-
Manufactured metal prods. machinery and equipment	24	1,924	558.84	558.80	220.13	338.72
Other manufactures and non classified	10	288	74.12	445.44	318.50	126.94
Grand Total	128	8,453	1561.08	9303.11	1510.1	4793.3

Source: Ministry of Planning, Bureau of Industrial Statistic, Results of the Industrial Census for year 1962. The table includes only the large industrial establishments employing 10 persons and more.

TABLE 5.3

INDUSTRIAL STRUCTURE IN BASRAH REGION IN 1968*

Industry	No. of Est.	No. of Employees	Wages paid Thous. ID	Value of Output Thous ID	Value of Input Thous. ID	Value added Thous. ID
Foodstuffs, beverages and tobacco	76	4,672	655.90	4599.02	3135.57	1,463.4
Textiles, ready-made clothes and leather	3	58	17.92	59.56	51.94	7.62
Wood products and furniture	8	83	17.0	61.48	45.42	16.06
Paper, printing and publishing	4	41	14.19	45.83	27.15	18.68
Chemicals and oil products	4	211	112.43	1774.56	253.52	1521.04
Non metallic mineral products	41	430	69.7	214.03	93.95	120.08
Basic metal industries	-	-	-	-	-	-
Manufactured metal prods. machinery and equipment	27	2,196	713.99	475.42	266.19	269.23
Other manufactures and non classified	-	-	-	-	-	-
Grand Total	158	7,691	1501.14	7229.9	3879.75	3356.15

Source : Ministry of Planning, Central Statistical Organization, Results of the Industrial Census for Year 1968, Baghdad, 1971, pp.61-88.

* This table includes the large industrial establishments employing 10 persons and more.

Region was much less than that in Iraq as a whole in that period. Although the number of establishments increased from 47 to 76, this increase took place in dates export-processing plants, at which production occurs seasonally, and they form a simple and unimportant industry within the industrial structure. Accordingly, until 1968, the industrial sector in Basrah Region was still behind the whole of Iraq. It should be noted that not all the industrial projects listed in the development plans introduced during the 1960's, as mentioned previously, had been implemented. Moreover, the nationalization decisions taken in 1964 affected industrial development in the private sector. Until 1968, in the Region there was no important industrial project at all. The small establishments dominated the industrial structure by their number, which increased from 1,175, 90.1% of the total in 1962 to 1,771, or 92% in 1968. Whereas these small establishments employed only 2,565 workers, 23.3% of the total or 2.2 workers per establishment in 1962, and 3,392 workers, 31% or 1.9 workers per establishment in 1968. All these establishments are handicraft workshops.

As noted in Table 5.2 and Table 5.3, the food processing industry had continued to be the most important until 1968 in terms of number of establishments and workers, value of input and output, forming 45%, 61%, 81%, and 64% respectively of the total in that year. While this industry was second in terms of wages paid and value added, forming 41% and 44% of the total. Once again we can say

that the great importance of this industry within the industrial structure in Basrah Region demonstrates the backward status of the industrial sector in this Region, particularly as the food industry consisted mainly of dates export-processing plants, as mentioned previously. Moreover, the industrial structure overall, for the year 1968 in the Region, remained similar to that for 1962, with all industries of textiles and clothes, wood products, and paper and printing, remaining unimportant in terms of all the above indices. There were no basic metal industries until 1968 and although the non metallic mineral products industries formed 26% of the total establishments in 1968, they formed low proportions of other indices, for instance, only 3.6% of the total value added. This industry consisted mainly of brick plants which are still using old techniques. The chemical and oil products industry was the most important in terms of the value added, 27.3% and 45.3% of the total in 1962 and 1968 respectively. This was partly because the oil refinery used local crude oil and modern techniques, and partly because of the increasing importance of oil and its products. In fact, although Basrah Region had extensive natural resources suitable for industrial development, they remained virtually unexploited until as late as 1968.

B. Industrial development 1968-1980

This, the most important period for industrial development in Basrah Region and Iraq as a whole, has seen the building of modern industries in all regions of Iraq, as a result of the implementation of development plans introduced by the state. By the end of this period Basrah Region had emerged as the most important industrial region in Iraq, with many large modern factories set up to produce a wide range of commodities. They include the basic industries in Iraq, represented by chemicals and petrochemicals, iron and steel industries, as well as other industries related to oil products and construction materials.

Unfortunately, however, the data concerning all industrial establishments in Basrah Region for the whole period of 1968-1980, are not yet available. Data related to the industrial structure of the large establishments are available for the period 1968-1974. There is some data available for industrial establishments overall, related only to their number, and to workers and wage levels in 1977, while the data of 1979 are related just to the number of establishments and workers. Additional data, not always of a systematic nature, has been collected by the author using personal visit and interview techniques at as many of these large factories as was feasible or permissible. Visits were also made to the headquarters of labour unions in Basrah Region. Accordingly, combining these various data sets it is possible to discuss the industrial development in the Region during the period 1968-1980, with emphasis on the large factories,

since they represent the essential industrial development that has taken place in that period.

A comparison between Table 5.3, Table 5.4, and Table 5.5 shows the following facts:

1. The number of establishments in Basrah Region increased by just two, from 158 in 1968 to 160 in 1974, compared with a decrease of 75 establishments in the whole of Iraq. While the total number in the Region decreased to 154 in 1977 and to 147 in 1979, compared with an increase of 26% in Iraq during 1974-1977.^{*(25)} This phenomenon can be attributed to the concentration of industrialization on the large industries, while the number of small industries decreases due to the merger or closure of some of them. The number of industrial establishments alone does not form a good enough index to measure the real industrial development.

2. The number of workers increased greatly by 58%, during the period 1968-1974, and 13% during 1974-1977, compared with 58% and 23% in Iraq as a whole. The annual growth rate was 8% and 4% in the Region, and 8% and 7.2% in Iraq respectively. During 1974-1979 in Basrah Region their number increased by 39%, an annual growth rate of 6.8%. Of course, this increase was caused by new large factories set up by the state during these periods, which saw the building of most of the factories listed in the development plan of 1970-1974, and some of those which were listed in the 1976-1980 plan. This is the reason why the increased rate of the workers in the period 1968-1974 was more than that of 1974-1977, both in Basrah Region and Iraq, and more than

* The data about industry in Iraq as a whole for 1979 are not available.

TABLE 5.4

INDUSTRIAL STRUCTURE IN BASRAH REGION IN 1974*

Industry	No. of Est.	No. of Employees	Wages paid (Thous. ID	Value of Output (Thous. ID	Value of Input (Thous. ID	Value added (Thous. ID
Foodstuffs, beverages and tobacco	112	7,209	1165.79	7007.7	1621.6	2387.3
Textiles, ready-made clothes and leather	2	79	27.69	76.5	61.8	11.7
Wood products and furniture	6	70	23.84	149.8	79.7	70.1
Paper, printing and publishing	2	1,952	782.5	4510.4	2982.6	1527.8
Chemicals and oil products	8	1,805	1219.4	9356.7	1755.7	7601.3
Non metallic mineral products	16	413	140.67	860.6	554.5	306.1
Basic metal industries	1	157	64.91	354.9	217.6	137.3
Manufactured metal prods. machinery and equipment	13	377	155.6	357.2	203.5	153.7
Other manufactures and non classified	-	-	-	-	-	-
Grand total	160	12,152	3580.40	22705.6	10480	12283.6

Source : Al-Timimi, A.A., Industrial Growth in Basrah and Nineveh Governorates, Ph.D.Thesis, University of Baghdad, 1977, p.109.

* This table includes the large industrial establishments employing 10 persons and more.

TABLE 5.5 INDUSTRIAL STRUCTURE IN BASRAH REGION
IN 1979 *

Industry	No. of Establishments	No. of Employees
Foodstuffs, beverages and tobacco	94	4,332
Textiles, ready-made clothes and leather	4	155
Wood products and furniture	6	185
Paper, printing and publishing	2	2,848
Chemicals and oil products **	11	3,931
Non metallic mineral products	16	1,945
Basic metal Industries	2	2,877
Manufactured metal products machinery and equipment	13	578
Other manufacturers and non classified	-	-
Grand Total	147	16,851

Source : Ministry of Planning (Iraq), Central Statistical Organization, General Relations Bureau, The Industrial Census of Iraq for 1979. The large industrial establishments in Basrah Province (unpublished data).

* This table includes the industrial structure for only large establishments employing 10 persons and more.

** The figures related to the chemical fertilizers were obtained from the headquarters of Labour Union in Basrah Region.

that of 1974-1979 in the Region.

3. The wages paid in the Region rose by 124% in the first period, and 107% in the second, compared with 126% and 118% in Iraq. The annual growth rate was 14% and 28% in Basrah Region, and 15% and 30% in Iraq respectively. This increase of wages is attributed to the increasing demand for labour in all sectors in Iraq after 1968, as a result of the execution of the comprehensive development plans which created large employment opportunities throughout Iraq. On the other hand, the rising standards of living in Iraq, as well as inflation since 1973, can be considered important reasons for that increase of wages.

4. The value of input in the Region increased by 171%, an annual growth rate of 18% in the period 1968-1974, compared with 220%, and 21% in Iraq. By contrast, the value of input in Basrah Region is less than that in the whole of Iraq, because many industries in the Region, such as paper, chemical fertilizers, and dates export-processing industries, as well as the oil refinery, used mainly local raw materials, while the industries in Iraq increasing use raw materials imported from abroad.

5. The value of output in the Region rose by 215%, an annual growth rate of 21%, compared with 113% and 13.4% in Iraq.

6. The "value added" by industry in Basrah Region increased by 266%, an annual growth rate of 24%, compared with only 18.4% and 3% in Iraq.

On the basis of the above figures, it is clear that the

importance of the industrial sector in Basrah Region increased greatly during 1968-1979, both in comparison with the previous period, and in comparison with the whole of Iraq in this period, during which the increase rate of value of output and value added in the Region was much more than that in Iraq.

Important changes took place within the industrial structure in Basrah Region during 1968-1979, as shown in Tables 5.3, 5.4 and 5.5. During 1968-74 the greatest statistical change was in the paper industry, and is entirely explained by the building of Iraq's first major paper factory in Basrah Region in 1972. Thus this sector's value added and number of workers rose from 0.6% and 0.5% of the total in 1968 to 12.4% and 16.1% in 1974. Also, the importance of the chemicals and oil products industry increased from 45.3% of the total value added and 2.7% of the total workers in 1968 to 61.8% and 14.7% in 1974 because production started at the new Shiaba Refinery and chemicals fertiliser factory during that period. The basic metal industry appeared for the first time in the Region in 1974, when the iron pipes factory started production. The relative importance of the food industry decreased as a result of the great development of the other industries, while no significant projects in this industry were set up. The value added by the food industry declined from 43.6% of the total in 1968 to 20.2% in 1974. Other important changes occurred in the non metallic mineral products industry in 1974, when the cement factory started production, before this there were only small plants making mud bricks, as mentioned previously.

During the period 1974-1979, the significant change was in the basic metal industry, due to the building of Iraq's

first major iron and steel factory in Basrah Region in 1979. Thus, in this sector the number of workers rose from 1.3% of the total workers in industry in the Region in 1974 to 17% in 1979. The importance of the chemicals and oil products industry also increased from 15% of the total workers in 1974 to 23% in 1979, because production started at the fertilizers factory in the Zabair Khur area, and expansion of the existing fertilizers factory in Abu Al-Khasib Qadha took place during that period. Other important changes occurred in the non metallic mineral products industry, when the lime bricks factory and prefabricated units factory started production. Thus, in this sector the total workers increased from 3.4% in 1974 to 12% in 1979. In the paper industry the total workers increased from 1,952 in 1974 to 2,848 in 1979, due to expansion of the existing paper factory in the Region. The importance of the food industry declined, with the number of establishments and workers decreasing from 117 and 7,299 in 1974 to 94 and 4,332 in 1979, due to closure of some of these establishments, particularly the date plants which have recently suffered from several problems, relating to marketing, work conditions, and dates production conditions in the date palm groves.

However, the main industrial development and the essential changes that took place in the industrial sector in Basrah Region during the period 1968-1979, are attributed to the new large modern factories set up by the state in that period.

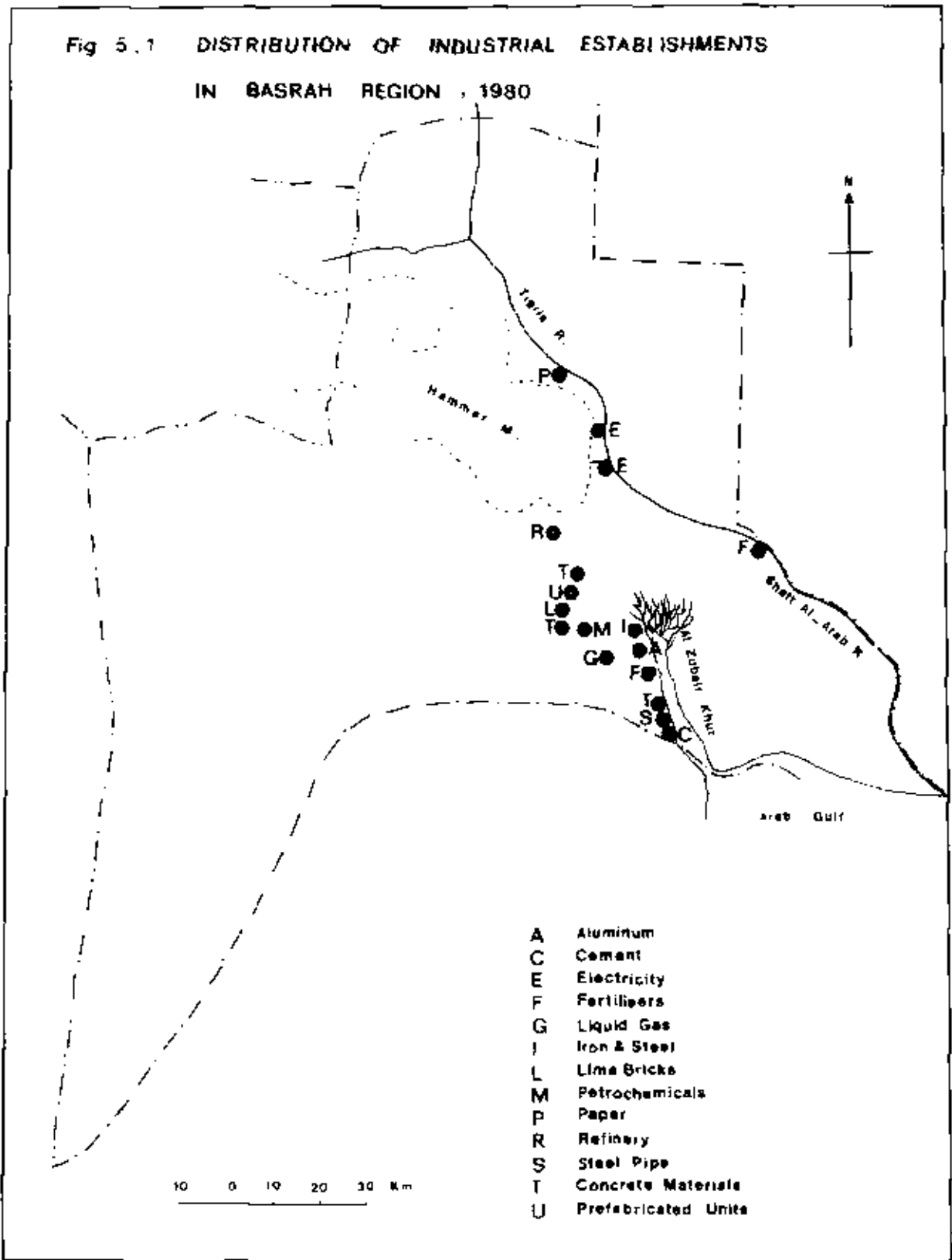
The Major Industries

In this section, the large modern factories in Basrah Region are considered, and classified according to their products, as shown in Tables 5.1 - 5.4.

1. Paper Industry :

There is one paper factory in Basrah Region, located on the right bank of the Tigris river, 35 km. north of Basrah City (see Fig.5.1). It is the first paper factory in Iraq, and commenced production in 1972, whilst the second one, located in Missan Region, was still under construction in 1980. The total capacity of the factory was 40,800 tons of paper and cardboard products a year. This factory was expanded in 1977 to produce different kinds of paper as well as pulp, with a total capacity of 131,100 tons a year, of which 57,000 tons was pulp, and 74,100 tons was paper. In addition, further processes such as the finishing and converting of paper and cardboard, the coating of paper, paper bag and envelope making, waxing and corrugating cardboard are undertaken by the factory. All these products are consumed in Iraq. The raw materials are reed, imported pulp, waste paper, and local and imported chemical materials. The reed is the main raw material with the marshlands providing a source area of this material. The maximum amount of reed which this factory requires is about 130,000 tons a year, supplied from the marshlands in Basrah, Missan, and Thiqr Region. At present, these marshlands supply the factory with all its demand for reed. The imported pulp amounts to 25,000 tons a year, while most of the chemical

Fig 5.1 DISTRIBUTION OF INDUSTRIAL ESTABLISHMENTS
IN BASRAH REGION , 1980



materials are locally produced. The power consumption is 35 million kw, and the factory also uses 10-15 thousand units of natural gas per hour, as well as 82,000 tons of fresh water a day. The capital investment in this factory is JD 88 million, and 2,863 workers are employed.*

2. Chemicals and Oil Products Industry :

This industry in Basrah Region comprises Shiaba Refinery, petrochemicals factory, and two fertiliser plants.

a. Shiaba Refinery :

This is one of the most important refinery in the whole of Iraq; it is located 15 km. west of Basrah City and started production in 1971. The total capacity is about 6.8 million tons a year. This refinery produces different kinds of oil products to supply domestic demand, and export the surplus, but at present, all of its production is consumed in Iraq, some in Basrah Region, and the remainder in the other regions. The main raw material is crude oil supplied by oilfields in Basrah Region, and some chemical materials, few of which are imported. It is also supplied by electricity and natural gas. There are 1,703 workers in this refinery.

b. Petrochemicals Factory :

This, the first factory set up in Iraq in the field of petrochemicals industry, was completed in 1980. This factory is situated in Zubair Qadha within the area called Al-Zubair Khur, an area zoned for heavy industries, and the most important such area in Iraq (see Fig.5.1). The total capacity of the factory is 150,000 tons a year of different

* The number of workers considered in this section includes all workers in the factories whether they are employed in the industrial processes, or services and other sections.

plastics materials, comprising : 60,000 tons of low intensity L.D.C., 30,000 tons of high intensity H.D.C., and 60,000 tons of B.B.C. The raw materials consist of natural gas and sodium chloride. The factory requires electricity and steam, and employs 2,000 workers. It is one of the most important basic industries in Iraq, aiming to supply domestic demand, and export the surplus.

c. Chemical Fertiliser Industry :

In Iraq there are two chemical fertiliser factories, both found in Basrah Region. One of them, on the right bank of the Shatt Al-Arab river in Abu Al-Khasib Qadha, commenced production in 1971 and expanded in 1977, the other, in the Al-Zubair Khur area, started production in 1979. The total operating capacity of these two factories is 1.5 million tons of Urea per year, of which 500,000 tons is produced by the first factory, and one million tons by the second one. Iraqi Urea is not only the most popular fertilizer for many farmers all over the world, but it is also used in many important industries, such as adhesives, resins, plastics, and even pharmaceutical products. In addition, Urea is used as a source of protein in stock feed.⁽²⁶⁾ The raw materials are natural gas and sulphur. Natural gas is also used as fuel as well as electricity. There are 1,799 workers employed in the chemical fertilizer industry in Basrah Region. Some of the production is consumed in Iraq, while the remainder is exported abroad, to such countries as China, Pakistan, Afghanistan, and South and North Yemen.*

* The data about the fertilizer exports from Basrah Region are not available. Although, it can be said that in 1979 the total fertilizers exported only from the factory found in the Zubair area was some 184,000 tons.

3. Basic Metal Industry

In Basrah Region this industry comprises the steel pipes factory and the basic iron and steel works. Both located in Zubair Qadha within the Al-Zubair Khur area (see fig.5.1).

a. Steel Pipes Factory

This is the sole factory in Iraq to produce steel pipes on a spiral weld machine. These pipes can be used for oil and water transportation, and civil engineering works such as building berths, bridges and silos. The factory commenced production in 1974, its total capacity is 2,227 tons a year, and all production is for internal domestic use at present. In this factory 250 workers are employed, and all raw materials are imported.

b. Iron and Steel Factory

Basrah Region's iron and steel works is the only one in Iraq. The works are again located in the Zubair Khur area, and their production began in 1979, concentrating on the production of round steel angles, strips, square steel, channels and I-beams. The total capacity is 440,000 tons a year. The raw materials consist of scrap iron, sponge iron, coal, lime, and natural gas. Except for lime, some scrap iron, and natural gas which are locally supplied in Iraq, the other raw materials are imported. The 2,300 workers at present supply the domestic market. In 1978, the total cost of the imported iron and steel to Iraq was some ID 83 million.

4. Non Metallic Mineral Products Industry :

In Basrah Region there are three factories producing construction materials : a cement factory, a lime bricks factory, and a prefabricated units factory.

a. Cement Factory

This is located near Um-Qassir City on the right coast of Al-Zubair Khur and commenced production in 1974. The total capacity is 500,000 tons a year, and all production is now to cover part of the increasing demand in Iraq at present, while part of its production used to be exported to the Gulf Arab Countries. This factory produces two kinds of cement : standard cement, and special salt-resistant cement. The basic raw material, clinker (limestone), comes from the northern part of Iraq, while the other materials are locally available, such as clay and gypsum. There are 187 workers in this factory. It is supplied by electricity as a source of power.

b. Lime Bricks Factory

This factory is situated on the road between Basrah and Safwan, and commenced production in 1976. The total capacity is 40 million bricks a year. The lime which is the basic raw material comes from northern Iraq. The factory employs 632 workers, and is fuelled by electricity. All production goes to the local market whether in Basrah Region or other regions of Iraq.

c. Prefabricated Units Factory

This is located near the lime bricks factory, and started production in 1976, to produce prefabricated buildings for the public sector. The total capacity is 567 residential units a year, to cover part of the demand for residences, which is rising rapidly at present. The raw materials are locally available in Basrah Region such as cement, sand, and gravel. In this factory 645 workers are employed.

The Private Sector in Industry

The economic policies introduced by the state during the political history of Iraq since 1951, have affected the relative importance of the private sector in industry, as mentioned in the earlier section of the present chapter. Generally, this importance decreased slightly until 1968, and then decreased greatly after this year, as a result of development of the publicly owned industrial projects. Although the state has been interested in developing the privately owned industries since 1968, certain industries are determined by the state to be set up within the private sector. They include light and consumer industries. In addition, the private capital locally available is not enough to set up significant industrial projects.

From Table 5.6, comparing the private with the public sector, some indices can be noted, related to the relative importance of the private sector in industry in Basrah Region.

TABLE 5.6 CLASSIFICATION OF INDUSTRY IN BASRAH REGION BY PRIVATE AND PUBLIC SECTORS*

Indices **	Basrah Region				% of the national total			
	1962	1968	1974	1977	1962	1968	1974	1977
No. of Es.								
Public	15	22	21	32	12.6	12.9	11.1	12.0
Private	113	136	139	122	12.5	12.0	13.4	9.5
Total	128	158	160	154	12.5	12.1	13.0	9.9
Employees								
Public	2030	2511	6077	9145	10.8	6.4	7.2	8.6
Private	6423	5180	6075	4548	13.3	13.6	16.1	10.2
Total	8453	7691	12152	13693	12.6	9.9	9.9	9.1
Wages paid								
Public	606.1	855.3	2882.7	6213.0	10.8	6.1	7.4	7.6
Private	955.7	745.8	697.7	1211.0	9.4	8.7	5.7	4.2
Total	1561.8	1601.1	3580.4	7424.0	9.9	7.1	7.0	6.7
Input								
Public	361.5	1774.5	8472.3	-	4.9	4.5	4.3	-
Private	4148.6	2098.6	2007.7	-	9.9	5.8	4.2	-
Total	4510.1	3873.8	10480.0	-	9.1	5.1	4.3	-
Output								
Public	1583.4	3538.3	18555.5	-	6.5	3.9	7.0	-
Private	7720.1	2691.6	4208.3	-	10.9	3.5	5.2	-
Total	9303.5	6229.9	22763.8	-	9.8	4.5	6.6	-
Value added								
Public	1221.9	1763.8	10383.4	-	7.7	3.5	4.8	-
Private	3571.4	1592.4	2200.6	-	12.1	5.1	6.6	-
Total	4793.3	3356.2	12283.8	-	10.5	4.1	12.1	-

Source : The Results of The Industrial Census in Iraq, for 1962, 1968, 1974, and 1977.

* The table includes only the large industrial establishments employing ten persons or more.

** The value of wages paid, input, output, and value added is estimated at thousands ID.

1. The number of privately owned establishments decreased from 88.2% of the total industrial establishments (both privately and publicly owned) in the Region in 1962, to 86.0% in 1968, and 79.2% in 1977* compared with 88.3%, 86.8% and 82.8% respectively in Iraq as a whole. The reason why the number of publicly owned establishments increased slightly during that period despite the great investments allocated to this sector, is that the publicly owned industrial projects consist of large factories, unlike the privately owned small establishments.

2. The proportion of labour force employed in the private sector declined from 75.9% of the total labour force working in industry in the Region in 1962, to 67.3% in 1968, and 33.2% in 1977* compared with 71.8%, 49.2% and 29.5% in Iraq.

3. The wages paid decreased from 61.1% of the total wages paid in the industrial sector, to 46.5%, and 16.3%, compared with 64.6%, 37.8%, and 25.9% in the whole of Iraq.

4. The input of the privately owned industries declined from 91.9% of the total input of industry in the Region in 1962, to 54.1% in 1968, and to 19.1% in 1974, compared with 84.9%, 47.6%, and 19.5% in Iraq.

5. The output decreased from 82.9% of the total, to 43.2%, and 18.4%, compared with 74.3%, 42.7% and 23.5% in Iraq.

6. The value added declined from 74.5%, to 47.4%.

* In 1979 the proportion of establishments was 74%, and of employees was 18% in Basrah Region, while the data about Iraq as a whole for this year are not available.

and 17.9%, compared with 65.1%, 38.2%, and 33.0% in Iraq.

With the exception of the number of establishments, the other indices confirm the great decline of the relative importance of the private sector compared with the rising importance of the public sector, particularly during the period after 1968. By contrast, the relative importance of the private sector in Basrah Region was higher than that in Iraq as a whole until 1968, but it was lower after this year. This is due to the fact that the publicly owned industry in the Region before 1968 was still undeveloped compared with the whole of Iraq, whereas the Region's emergence as the most important industrial region in Iraq has meant rapid development because of state policies and consequent change in the role of state production.

The absolute importance of the private sector has also declined in all indices shown in Table 5.6, particularly in the 1970's, except for wage levels which increased after 1974 due to the increase in wage levels in all sectors in the whole country as a result of inflation. It should be noted that in 1979 the number of privately owned establishments in the Region decreased to 81% of the total in 1968, while the number of employees in this sector declined to 48% during the period 1962-1979. During 1962-1974, despite inflation, the value of input, output, and value added decreased to 48%, 55% and 62% respectively.

Labour

The relatively high rates of growth in the industrial sector in the whole of Iraq that have taken place since

1968, as a result of the development plans introduced by the state, have caused the number of employees in this sector to rise rapidly. While the 1970-74 plan called for the creation of about 60,000 jobs in industry,⁽²⁷⁾ the 1976-80 plan called for the creation of more than one million jobs, against a quarter of a million engaged in that sector in the mid-1970's.⁽²⁸⁾ Nevertheless, the supply of a labour force has not formed a serious problem facing the industrial development of Iraq. The demand for labour has been covered by different sources. In 1969, about 4.29% of the total labour force in Iraq, were unemployed, so some of them started to work in industry. The high rates of population growth resulted in a rise in the number of population of working age; these constituted about 48% and 47% of the total population in Basrah Region and Iraq respectively according to the 1977 census, as mentioned in chapter two. A relatively high proportion of the graduates of universities, institutes, and schools tend to work in industry, both those specializing in this sector and others, unskilled, since the conditions of work in the modern factories are much better than those in many other fields of work. Before 1968, these people were forced to work mostly in the services sector. In addition, the relatively high rates of growth in vocational education that took place after that year, (see Chapter seven), are an important source of industrial labour. The shifting of the labour force to industry from other sectors, particularly agriculture, in recent years, has provided industry with a considerable proportion of its employees. Beside the local labour force, at present the foreign labour force

constitutes a high proportion of the total in Iraq, working in different sectors, including industry. Moreover, in the last few years, a significant social feature has appeared in Iraq, with a large number of females of working age being employed in the industrial sector, in both rural and urban population.

If it is possible to supply quantitatively the industrial demand for labour in Iraq, as the above facts show, it is not so easy to build up adequate technical and managerial staff in a few years, which have seen the real industrial development in this country. To meet this need, large sums are spent on training by the state. For instance, the total expenditure for industrial training was ID 55 million during the period 1975-1979.⁽²⁹⁾ In every modern factory a certain proportion of the total investment is allocated for training, and many special industrial training institutes have been set up in Iraq to prepare staff, one of which is found in the Zubair area in Basrah Region. In addition, vocational schools and institutes, as well as universities, also share in preparing the staff. Comparatively, the present situation of technical and managerial staff in many factories is much better than it was during the first half of the 1970's. On the basis of the above facts, it can be said that Iraq will certainly have adequate staff in the industrial sector in the near future.

In Basrah Region, labour demand is supplied by local population, migrants from other regions in Iraq, and foreign employees.* In addition to the permanent employees,

* The data related to sources of labour in Basrah Region are not available.

there are seasonal employees estimated to more than ten thousand, working about three or four months a year in the dates export - processing plants, of which 90% are females.

The figures shown in Table 5.7 throw some light on the nature of the labour force structure in Basrah Region according to the 1977 Census. This table shows that males constitute 80% of the total permanent labour force working in the manufacturing industry, while females are 20%, compared with 83% and 17% respectively in Iraq as a whole.* Based on age groups, 5.4% of the industrial labourforce in the Region are under 15 years, 3.1% are 65 and over, and 91.5% are between 15 and 64. This structure means that 8.5% of the total labour force are people not of working age, compared with 20.3% in the agricultural sector. All people not of working age are employed in the private industrial sector, particularly in handicrafts, while all people working in the state owned industrial establishments are of working age according to the labour laws issued in Iraq. About 58% of the total workforce are between 20 and 39 years of age, which means that the majority are young people unlike those working in the agricultural sector, where young people form only 29.8% of the total labour force, (Chapter four).

However, although significant development has occurred in the industrial sector, both in Basrah and Iraq as a whole, the proportion of labour force in this sector is relatively low compared with the total labour force working in all

* This census does not include the seasonal labour force, particularly those who work in date export-processing plants.

TABLE 5.7
INDUSTRIAL LABOUR FORCE IN BASRAH REGION, 1977*

Sex	Age Groups											Total			
	7-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59		60-64	65 and over	Un known
Males	53	808	1655	2899	3893	2942	1947	1159	1414	999	719	602	660	18	19768
Females	34	434	635	1065	789	470	302	273	284	215	140	71	95	6	4813
Total	87	1242	2290	3964	4682	3412	2249	1432	1698	1214	859	673	755	24	24581

Source : Census of Iraq, 1977

* This table includes only the labour force working in the manufacturing industries

sectors. Until 1977, it was only 9.7% and 9.1% in the Region and Iraq respectively.⁽³⁰⁾ But, taking into consideration the new factories set up during 1977-1980, an important increase took place in the labour force in the industrial sector. In addition, if all industrial projects, listed by the 1976-80 development plan were executed and started production, a million employees would be added to the total number working in the industrial sector in Iraq. A significant proportion of these would be employed in this section in Basrah Region, in the light of the large modern industrial projects set up here, and other new projects at the design stage or under construction.

The Spatial Distribution of Industries

The location of industrial establishments is affected by specific factors. These factors include : accessibility of raw materials and the cost of their transport; proximity of markets and the cost of transport of finished goods; sufficiency and suitability of labour; linkages with other industries; service needs for water, gas, and electricity; disposal of solid and liquid wastes; and the amount of fixed plant. The relative importance of these factors varies with each industry and to a lesser degree with each factory.⁽³¹⁾ In addition, it should be said, that not all location factors are economic factors; for example governmental policy is an important factor in choosing the location of industrial establishments, whether throughout the country or in the regions, based on security or political considerations, as well as economic. Personal considerations

also affect location. All these factors should be borne in mind when analysing the spatial distribution of industrial establishments in Basrah Region, shown in Figure 5.1.

Regardless of whether the present location of industries in the Region are of the optimum economic point for Iraq, we will now discuss the location factors which resulted in the distribution of the industrial establishments on their present sites. For accurate evaluation of location factors in a specific case, a complete analysis of relative costs and other considerations on particular sites would be necessary. These analyses are often made by industrialists when considering the opening of a new factory. They naturally involve a great deal of detailed work which is outside the purpose of the present study. (32)

As mentioned in the earlier part of this chapter, Basrah Region attracted some export-processing industries for products such as dates, wool, grains, and liquorice. in addition to ship building and repair work, because the Region contains Iraq's only coastal area. For the same reason most of the large modern factories set up by the state have been found in Basrah Region, such as factories producing iron and steel, petrochemicals, cement, steel pipes and fertilizers, and an oil refinery. All these industries have been attracted mainly by the marine location available in the Region. However, some local factors have contributed to distributing these factories on particular sites, as shown in Figure 5.1. The Al-Zubair Khur area has been chosen for many factories. This is partly as a result of the state policy to create controlled estate

environment for heavy and component industries in Iraq, aiming to export their products and import some raw materials, and partly because of the deep water available in the Al-Zubair Khur. Large ships can not reach Basrah Port where the water of the Shatt Al-Arab river can not take ships with a draft of more than 32 feet . At present, the Al-Zubair khur area includes some factories , petrochemicals, iron and steel, cement, steel pipes, fertilizers, lime bricks, prefabricated buildings, and other factories which are now under construction such as an aluminium factory. These industries, in addition, benefit from other location factors available in this area and surrounding areas. The most important factors are natural gas and oil which are readily available in the Zubair area, as mentioned previously. Moreover, there are vast lands in this area not suitable for agriculture which can be used for industrial purposes. Also, this area is unpopulated and far away from populated areas in the Region, which avoids the pollution problem facing industrial communities.

Before this policy was introduced, the first fertilizers factory was set up on the right bank of the Shatt Al-Arab river, south of Abu Al-Khasib City. The river was an important location factor in its own right at that time, with nearly all Iraq foreign trade passing through it, and the factory was set up to export its products. In addition, the factory benefits from this river as a source of fresh water and to drain waste water.

Shaiba Oil Refinery, however, was set up to export

part of its products, but, at present, all its production is consumed in Iraq, and it is, anyway, possible to export the oil products by ships which can reach Basrah Port. Accordingly, this refinery was set up 15 km. west of Basrah City, and not in the Al-Zubair Khur area. The oil products are piped from the refinery to Basrah City where there is a delivery station, which replaced the old refinery, Muftia Refinery, situated on the right bank of the Shatt Al-Arab river. This distributes products both to supply domestic demand and for export.

The dates export-processing plants are only found in the river levees close to or on the river banks, to benefit from the rivers, whether for transportation or as a source of water used in the processing of dates. Although, at present, dates are mainly transported by vehicles, these plants have remained in the same locations. On the other hand, all date plants export their production, originally through Basrah Port, and at present from a special dates export-wharve built on the right bank of the Shatt Al-Arab, downstream from Abu Al-Khasib City. Nevertheless, these plants are distributed in many different locations throughout the river levees from Fao City in the South to Qurna in the north, and to Mudaina in the west. This wide distribution can be attributed to the purely personal factor, that most of the owners have set up their plants in the area in which they live. The available labour force, particularly females, and suitable site for building the plant, are also contributing location factors in some cases. The transport cost is not taken into consideration in choosing the location of plants

because the distance is not uneconomic whether to transport the raw materials (dates) or the finished products. The transport cost is relatively inexpensive, nearly all the plant owners have private vehicles, and petrol is cheap in Iraq.*

In Basrah Region there is only one industrial establishment whose detailed location is affected mainly by the need to be near its raw material. This is the paper factory which uses reeds as the main raw material to produce pulp and paper. It was set up on its present site because the marshlands in which are the source of reeds are concentrated in the northern part of the Region; the surface water of these marshlands, drained by the Tigris river, as mentioned in Chapter One, can be used to transport the reeds to the factory. It is well known that reeds are heavy and large compared with the finished products, and the factory handles great quantities of reeds, which makes transport costs a high proportion of the total value of input. To solve this problem reeds are transported by the water routes. The factory location, 35 km north of Basrah City and 40 km, south of Qurna City, helps the workers to benefit from the services available in these two main central cities in the Region. In addition, the factory is supplied by fresh water from the Tigris river. The main highway between Basrah and Baghdad provides an important infrastructure for this industry, and will be discussed in some detail in Chapter Six. Natural gas is piped to the factory from oil fields in the Zubair area, although the factory is near the Nahar Umr oil field, since it was opened before this field started production.

* The petroleum price in Iraq, at 1980 prices, was IF 150 per gallon, and diesel oil price was IF 40. One Iraqi Fils = $\frac{1}{7}$ of Penny.

The remaining industries in Basrah Region have been mainly affected in their locations by the factor of the proximity of consumer markets. These industries include two groups : "urban manufacturers" and the mud bricks industry. Firstly, the industries which are located in the urban areas can be called urban manufacturers, including all small industrial establishments employing less than 10 persons, in addition to the remaining large industrial establishments employing 10 persons or more. Most of these industries are handicraft workshops, such as food industries, dressmaking, vehicle repair, furniture making, jewellery making, printing, etc. The majority of these industries are concentrated in Basrah City, the largest consumer market in the Region, and will be discussed in detail in Chapter eight.

Secondly, the mud bricks industry which is usually located near urban areas in Iraq. The transport cost of finished goods for this industry is often the most important factor in location. The reason for this is the weight and bulk of the finished goods which are equal to those of the raw material which is available freely or very cheaply in the alluvial plain. Therefore, mud brick plants can be located where the raw material can be obtained near the consumer markets, in order to reduce the transport cost of the finished goods. As these goods are heavy, of large bulk, and cheap, it is uneconomical to transport them over a long distance. This explains why these plants are concentrated mainly near Basrah City which is the most important consumer market for this industry. The existence of the

uncultivated lands, suitable raw material, relatively high lands within river levees over the level of annual normal floods, as well as the road between Basrah and Qurna (a part of the road between Basrah and Baghdad), all of these factors explain the concentration of these plants in a belt on this road north of Basrah City and south of Qurna City (see Fig. 5.1).

Conclusion

Although industrial development in Basrah Region and Iraq as a whole has taken place since the mid 19th century, this sector was backward and insignificant until the early 1970's. Before this the industrial structure in the whole of Iraq was dominated by small establishments, most of which concentrated on handicrafts of one sort or another. With the exception of some export-processing industries from products such as dates, wool, and cereals, the others were set up to supply a part of the domestic demand. Within this industrial structure, food and textile activities were the most important. The political history, successive government policies, funds available, domestic market, and industrial skill, all of these were factors affecting industrial development in Iraq throughout these periods.

Since the early 1970's, industry has greatly developed throughout the country, due to the large increase in the oil revenues, and to the state policy which has substantially emphasized the industrial sector above the others. This has taken place in Iraq in spite of some limitations. There

was not enough skilled labour available, particularly in the first stage of this development. Most of the raw materials supplied to many factories were and continue to be imported. The sites of many factories have been chosen, not for economic factors, but for political or military reasons. Such problems and others have had an inevitable impact on production in many factories throughout the country, including those in Basrah Region, although the situation in some of these is much better than it was before, such as paper and fertilizers industries in the Region, for instance.

But, despite these problems, the industrial structure has been transformed since the early 1970's in both Basrah Region and Iraq as a whole. Many new industries, both heavy and light, have been set up throughout the country. Some of these, according to government policy, should produce to export. For this reason the large modern factories in Basrah Region have been set up to take advantage of Basrah's locational characteristics. This explains why Basrah Region has received such great attention from the state, and become the most important industrial region in Iraq, while before that date, when Iraqi industries were dominated by the private sector, these industries had been greatly concentrated in Baghdad Region. This region, as befits a capital, has the largest market, the highest concentration of funds, labour force and infrastructure in the country. In addition, in Basrah Region raw materials are available for some industries set up in the Region, such as reeds for the paper industry,

natural gas for the fertilizers and petrochemical industries, oil and natural gas for the iron and steel industry, and for the refinery. Accordingly, it can be said that these industries have been set up in Basrah Region, mainly for economic reasons, yet many industries in other regions of the country have been set up for other reasons, and these regions lack significant assets such as adequate location, accessibility of raw materials and proximity of markets. Thus, the potential for the continuing success of industries set up in Basrah Region should be greater than those of industries which have been set up in other regions for non-economic reasons.

This industrial development has created increasing demands for labour. This labour force, initially largely supplied by Iraqis has, in recent years, had an increasing element of foreigners, the main origins of which have been Egypt, Pakistan and Bangladesh. In the early 1970's availability of skilled workers was a significant problem facing industry, but, in a few years, workers' skill has increased through training and experience, although there is still room for improvement.

Before 1968, industry was dominated by privately owned small establishments, mostly handicrafts. After 1968, because of state policy, the importance of the public sector in industry increased greatly, while the importance, both relative and absolute, of the private sector declined substantially in the Region and Iraq as a whole.

Finally, it can be said that the large modern industries set up in Basrah Region by the state increased the economic importance of the Region so that it has become the most important industrial region in Iraq. This is because the existing industries in the Region are key industries for the whole country, both in supplying the domestic demand and in exporting some of their production.

Chapter 5 - References

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CHAPTER SIX

TRANSPORT IN BASRAH REGION

If they are to be sustained, the rapid developments which have recently taken place in the different socio-economic sectors in Basrah Region and Iraq as a whole, require a parallel development in the transport sector. The population has grown; the standard of living has risen, leading to an increased number of motor vehicles and encouraging people to travel; the volume of foreign and internal trade has doubled; there has been great industrial development involving the construction and expansion of factories and the transport of products, raw materials, fuel and labour; added to all this is the development taking place in services and other sectors. All of these developments need more transport facilities and, in the absence of the latter they all contribute to the increased congestion problems.

However, the poor transport situation has been more serious in Basrah Region than in the rest of Iraq, as it has been the most important economic region in the country in terms of industrial structure and oil and gas production, as well as including all Iraqi goods ports and oil terminals at the Arab Gulf. In addition, the Region includes part of the road linking the East Mediterranean and the Arab Gulf countries. This nodality, linked to the peculiar problems of serving a large local population within the context of a difficult physical environment has made the transport issue for Basrah Region both particularly important and particularly acute.

Recently, in Basrah Region as in Iraq as a whole, some aspects of the transport sector have been significantly developed, while others have remained undeveloped; all this is discussed in this chapter. Such indicators as number of passengers, and

quantities of goods loaded, as well as numbers of vehicles, will be used as a mean of evaluating these developments.

Transport is a wide-ranging term including road, rail, air, inland water and sea. Basrah Region is the only region in Iraq to include all these five transport categories, each of which will be dealt with separately before considering the effects of the network as a whole and the likely benefits of a greater degree of integration between the elements.

Maritime Transport

Iraq has a very short coastline at the head of the Arab Gulf, which extends for 90 kms. and all of this distance is in Basrah Region. This coast has no suitable site for a harbour, because of the shallow water, and the extensive mud-flats. The Al-Zubair Khur provides the only good anchorage, and the only possible site for an enclosed harbour, with a depth of about 10 metres. However, the Al-Zubair Khur area is remote and unpopulated with bad desert weather conditions. By contrast, the Shatt Al-Arab river is navigable by steamers, and on both its sides there are important agricultural and populated areas in both Iraq and Iran.* In Iraq this river is the terminus of the inland water transport. In the times when land transport was undeveloped and water transport dominant, Basrah City played a significant part in the maritime foreign trade of Iraq in the different historical eras. This will be discussed in detail in chapter eight.

* There are two Iranian ports on the left side of the Shatt Al-Arab, Abadan port and Muhammarrah port, see Fig.6.1.

In the nineteenth century Basrah, under Ottoman rule, prospered from the development of steam navigation by the Lynch Brothers on the Tigris river. No quays yet existed for ocean steamers, ships being unloaded in midstream, but by 1914 the vessels of ten companies, mostly Indian and British, called regularly, and the port had a total trade worth about £6,000,000 a year. The construction of the modern port was undertaken by the British Army after the occupation of Basrah in 1914, when it became the supply base of all the British forces in Iraq. The site selected for the main wharves was at Maqil, 6 km. above Ashar (City centre), where there was deep water close to the bank. A continuous series of wharves, 3,000 feet long, with modern cranes, was built, backed by a transit area and railway yards linked to the Basrah-Baghdad railway. In April 1920 this new port was opened for use as a commercial establishment, its new status depending upon the port of Basrah Proclamation 1919 (provisional), since incorporated in the laws of Iraq. In 1921 the Basrah Port Directorate, still in British ownership, was placed under the control of the new Iraqi Government and administered by the Ministry of Finance. (1)

Basrah Port can be approached by any ship capable of using the dredged channels up the Shatt Al-Arab river. The main physical problem facing navigation in this river is the sediments deposited at the river bed. There are two most important areas of depositing, where bars form, one of them south of the junction of the Karun river with the Shatt Al-Arab, called Muhammerah bar, and the other south of the mouth of the Shatt Al-Arab river where there are two bars, called Fao bar.

Therefore, the draught of ships is limited by these bars. In view of the continued sedimentation, dredging operations are run continuously along the Shatt Al-Arab river, particularly at the bars, to make navigation possible. The Rooka channel across the outer bar was dredged in the 1940's to a minimum depth of 23 feet at mean low-water springs and had a maximum depth of 33 feet at high-water springs. The Western channel across the outer bar had a minimum depth of 8 feet and was used by shallow-draught and sailing vessels. The inner bar was dredged to a minimum depth of 23½ feet. The Muhammerah bar was dredged to a minimum depth of 20 feet at mean low-water springs and had a maximum depth of about 27 feet at high-water springs. At Basrah Port the limits were a draught of 30 feet, but for the best working results the draught should not exceed 25 feet. The main wharves had 25 feet of water alongside at low water.

The port was used by ocean steamers, sea-going native sailing-craft, and inland-water craft. In 1938/39, 272 steamers and 2,568 sea-going native crafts entered the Shatt Al-Arab and docked in the port of Basrah. The imports through the port of Basrah for 1938/39 totalled 354,467 tons, of which 21,708 tons were carried by sea-going native craft. The exports for the same year were 455,000 tons, of which 58,967 tons were carried by sea-going native craft. The principal exports were grain and dates; wool, hides, liquorice-root, and cotton were subsidiaries. Imports included building materials, timber, cement, machinery, piece goods, tea and sugar. Basrah was also an important

port for passengers, including tourists and pilgrims. In 1938, 10,524 passengers disembarked and 8,945 sailed.

Fao City was the dredger depot for the port of Basrah. It had a wooden pier 15 yards long and 5 yards wide, and four floating pontoons formed a jetty 70 yards long. Safe anchorage was available in the river for ships up to a length of 550 feet and a draft of 22 feet.⁽²⁾

In 1949/1950, the number of steamers docking at Basrah Port was 403, an increase of 148% over the total number of steamers docked in 1938/39. The imports through this port for 1949/50 totalled 469,019 tons, 132% of imports in 1938/39, of which 10,779 tons were carried by sea-going native craft, about 50% of the 1938/39 figure. The exports for the same year were 1,186,397 tons, 261%, of which 53,330 tons were carried by sea-going native craft, 90% of those in 1938/39. In 1950, 16,415 passengers disembarked and 16,075 sailed, 156% and 180% respectively of the numbers in 1938/39.⁽³⁾ It should be noted that the importance of sea-going native craft in carrying Iraqi imports and exports, decreased due to the expansion of its foreign trade with different countries, particularly European. This led to increased movement of ocean-going vessels at the port of Basrah. Exports increased much more than imports, because agricultural production in Iraq increased greatly in the post-World War II years, while the standard of living was low. Thus the marketing of foreign goods in Iraq was also limited in that time, although imports increased in 1949/50, as already mentioned.

After 1958, Iraqi foreign trade increased greatly, thus the movement of merchant steamers doubled in the port

of Basrah. In 1960, 718 ocean-going merchant vessels docked at this port.⁽⁴⁾ These vessels were loaded with 1,589,000 tons of goods, 1,256,000 tons of imports, and 333,000 tons of exports.⁽⁵⁾ Compared with the figures for 1949/50, in 1959/60 the number of ocean-going vessels increased by 178%, the imports by 268%, and the exports by 28%. It is clear that the increase in the proportion of imports was high. After the 17th July 1958 Revolution in Iraq, the Government completely opened the field for the private sector to import goods from different countries, particularly socialist countries. In addition, the oil revenue increased, and development programmes started to be executed by the state, especially in the industrial and service sectors. Exports, on the other hand, increased by a very small proportion, which can be attributed to the decrease in agricultural production. The most important reason for this was the failure of the Agrarian Reform Law application, issued in 1958; also the internal political conditions were unstable during the first five years after that revolution. Thus, massive population migrations took place from rural areas to urban, as already mentioned.

The movement of passengers declined greatly through the port of Basrah. In 1960, 8,212 passengers disembarked and 5,372 sailed. By contrast, this was only 50% and 33% respectively of the number in 1950. This was due to the development of other kinds of transport, which provided strong competition to the water transport.

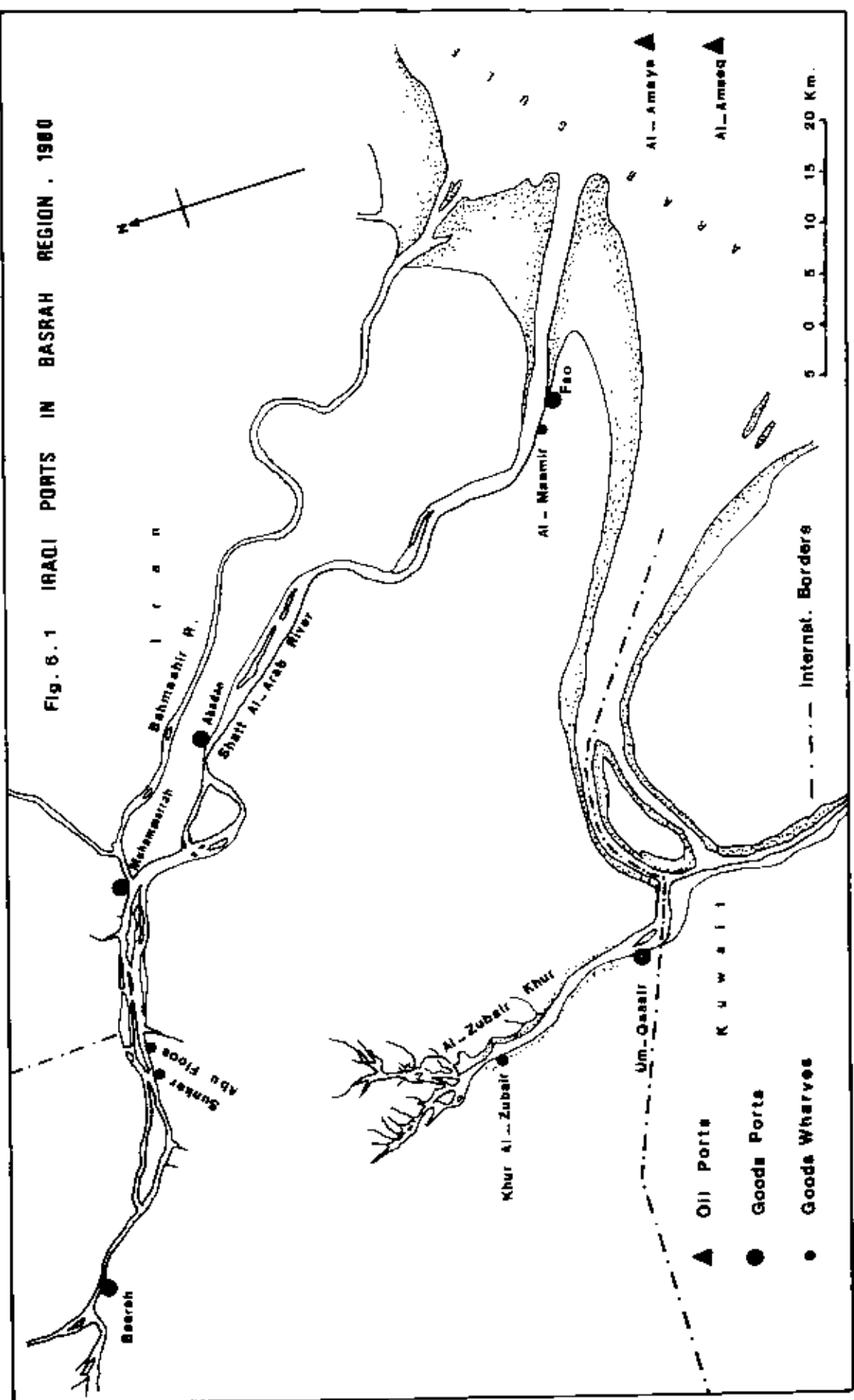
In view of the great increase in foreign trade, particularly in imports, it became necessary to build a new port, capable of taking deep draughted ships. Therefore, the Government chose the Um-Qassir as the site for the new port, which started operation in 1967 (see Fig.6.1). The wharves of this port have 36.5 feet of water alongside at low water, compared with 30 feet at the port of Basrah. The other reason for choosing the Um-Qassir site, is the physical problems already mentioned, particularly sedimentation, facing navigation through the Shatt Al-Arab river. To solve this problem the General Establishment of Iraqi Ports has continued dredging operations throughout this river, especially at the bars. Table 6.1 shows the quantities of sediments dredged annually during the period 1963/64 - 1972/73.

Table 6.1 The Quantities of Sediments Dredged Annually
from Shatt Al-Arab River

Year	Quantities of Sediments Dredged (Cub.M.)
1963/64	1,420,000
1964/65	2,569,000
1965/66	2,922,000
1966/67	3,820,000
1967/68	3,596,000
1968/69	3,063,000
1969/70	3,185,000
1970/71	3,170,000
1971/72	3,153,000
1972/73	4,814,000

Source : Ministry of Communication, The Technical and Economic Studies for Projects of Iraqi Ports Establishment for The National Development Plan 1975-1979, Vol.4. Part 1, p.9.

Fig. 6.1 IRAQI PORTS IN BASRAH REGION, 1980



In addition, the political problems related to the boundaries between Iraq and Iran, especially along this river, also provide an important reason for choosing the Um-Qasir site. These political problems have become more tense since 1958, with armed forces massed along the borders between these two countries, and then actual fighting as the war started in September 1980. Navigation in this river has stopped completely, and all foreign trade through all Iraqi ports has come to an end as a result of that war. However, navigation in the Shatt Al-Arab is affected directly because of the location of this river between these two countries.

Development of Ports 1960-1980*

As noted in Table 6.2, the activities of the Iraqi ports had continued with severe limitations during the period 1960-1970, both in number of vessels docked, and in quantities of imports and exports, with simple variations from the general average of that period. Iraq was suffering from economic stagnation, when the oil revenue, as the main source of national income, was not sufficient to boost the economy. In addition, the other economic sectors, particularly industry and agriculture, continued undeveloped, as mentioned in Chapters four and five. After 1971 the ports' activities increased substantially until 1980, particularly in imports. In 1971, imports had increased by 154% compared to 1960; the national Development Plan 1970-1974 started to

* Exclusive of the Oil ports which will be discussed in the next section.

TABLE 6.2 **NUMBER OF VESSELS AND TONNAGE OF IMPORTS AND EXPORTS THROUGH THE IRAQI PORTS**
(In Thousand Tons)

Year	Number of Vessels		Tonnage of Cargo (000 tons)		
	Arrived	Sailed	Imported	Exported	Total
1960	718	730	1,256	332	1,589
1961	750	751	1,291	354	1,645
1962	731	730	1,383	627	2,010
1963	702	710	1,002	529	1,531
1964	723	723	1,309	500	1,809
1965	774	773	1,168	685	1,853
1966	851	845	1,254	688	1,942
1967	790	794	1,278	549	1,827
1968	781	779	1,155	461	1,617
1969	649	654	1,031	603	1,634
1970	529	527	1,082	439	1,521
1971	659	658	1,933	430	2,363
1972	563	546	1,868	453	2,321
1973	643	629	1,511	1,032	2,543
1974	749	745	2,715	883	3,598
1975	828	827	3,166	1,441	4,607
1976	891	892	3,430	1,279	4,709
1977	984	977	3,772	964	4,736
1978	1,127	1,136	4,191	897	5,088
1979*	-	-	5,953	821**	6,774
1980*	-	-	1,085	608**	1,693

Source : Annual Statistical Abstracts (Iraq) for the years 1960-1978.

* Iraqi General Trade Union of Ports Workers, The Productive Report for the period 1st January 1978-30th June 1980, pp.29 and 36-37.

** These figures include only fertilizers and sulphur exported.

executed, and the oil revenue rose because of the increase in crude oil exports (this will be discussed later). However, significant development in exports did not take place before 1973, when sulphur and chemical fertilizers started to be exported. In that year, exports increased by 310% compared to 1960. Although the total quantities of both imports and exports through Iraqi ports in 1973, were 160% of those in 1960, the total number of vessels, arriving and sailing was only 88%. This can be attributed to the increase of size rather than number of vessels, as the large vessels have been able to dock at the port of Um-Qassir, as already mentioned.

However, the remarkable increase in activities of the ports had taken place since 1974, particularly in imports, as shown in Table 6.2. This is because since 1973, oil revenues have risen greatly, as mentioned in Chapter five, which contributed to executing great comprehensive development programmes throughout the country. These programmes need to import different materials. In addition, as a result, the income and standard of living of individuals have risen, which resulted in increased demand for different consumptive commodities, and most of these are imported. In 1974, the imports increased to 216% of those of 1960, to 334% in 1978, and 474% in 1979. In 1979, the imports were 219% of those in 1974. The total quantities of goods imported in the first half of the year 1980, was nearly the same as the imports total for the whole of 1978. This means that if imports continued at the same rate in the whole of 1980, they would come to 650% of the imports in 1960 and 300% of those in 1974.

The number of vessels arriving and sailing through Iraqi ports, had increased greatly since 1974. It rose from 103% in 1974 to 156% in 1978 of the number of vessels in 1960. Although exports were not parallel to imports in their increase, they had also increased greatly since 1973, compared with exports before that date. However, exports consist mainly of sulphur, chemical fertilizers, and dates, which are all affected by external demand; and dates are also affected by production. Thus, the quantities of these three goods exported differ from year to year, as shown in Table 6.2.

To make the picture of the development of activities in the ports clearer, we refer to Table 6.3 which relates to the port of Um-Qassir. This port is almost solely allocated to import heavy goods, and export sulphur. In addition it includes a special military wharf to import arms, but the data about this wharf are not available. However, as noted in Table 6.3, the number of vessels and tonnage of imports and exports through the port of Um-Qassir, increased substantially during the period 1967-1980. Except for the year 1980 because the data are available only for its first half, the total number of vessels arriving and sailing at this port in 1979 increased by 428% compared to 1967, while the total quantities of imports and exports increased by 2192%.

In the light of the above figures, it is clear that activities through the Iraqi ports had developed greatly since the early 1970's, so much so that the authorities of the ports created other ports or wharves elsewhere. These new wharves are : Abu Floos, Al-Maamir, Khur Al-Zubair. The first two wharves are allocated to import different commercial

TABLE 6.3 **NUMBER OF VESSELS AND TONNAGE OF IMPORTS AND EXPORTS THROUGH THE PORT OF UM-QASSIR**

Year	Number of Vessels			Tonnage of Cargo (In Tons)		
	Arrived	Sailed	Total	Imported	Exported	Total
1967	13	12	25	66,000	-	66,000
1968	29	28	57	129,000	-	129,000
1969	18	18	36	120,000	-	120,000
1970	37	36	73	154,000	-	154,000
1971	84	83	167	270,000	-	270,000
1972	56	53	109	179,000	-	179,000
1973	89	89	178	115,000	160,000	275,000
1974	112	112	224	87,000	258,000	345,000
1975	141	143	284	211,000	280,000	491,000
1976	55	52	107	151,000	118,000	269,000
1977						
1978*	-	-	-	426,000	612,000	1,038,000
1979*	-	-	-	810,000	637,000	1,447,000
1980*	-	-	-	872,000	286,000	1,158,000**

Source : Annual Statistical Abstracts (Iraq) for the years
1967-1976

* Iraqi General Trade Union of Ports Workers,
op.cit. pp.29-37.

** The data concerned the year 1980 include the
period from 1st January 1980 - 30th June 1980.

(-) The data concerning the number of vessels are not
available. During 1967-72 no goods exported from
this port which exports only sulphur.

goods, while the third is to import the raw materials and equipment for the Iron and Steel Factory, and to export its products and chemical fertilizers produced by a factory located in the Khur Al-Zubair area. In addition, there is a special wharf to export dates called Al-Sanker, as well as Basrah Silo, which imports and exports cereals (see Fig. 6.1). Furthermore, the state permitted the foreign companies working in Iraq to build private wharves for their goods and equipment, to reduce the pressure on the ports. Therefore some private wharves were set up for that purpose.

However, as noted in Table 6.4, the achieved capacity is higher than the designed capacity in all ports and wharves.

TABLE 6.4 CAPACITY OF PORTS AND SEPARATE WHARVES DURING THE FIRST HALF OF THE YEAR 1980

Port or Wharve	Designed Capacity (Ton 000)	Achieved Capacity (Ton 000)	Percentage
Basrah Port (Magil)	4,104	5,115	125
Um-Qassir Port	1,896	2,295	121
Abu-Floos Wharf	700	641	92
Al-Maamir Wharf	234	209	89
Khur Al-Zubair Wharf	463	770	166
Grand Total	7,397	9,030	122

Source : Iraqi General Trade Union of Ports Workers, op.cit., pp.36-37.

except for the Abu-Floos wharf and Al-Maamir wharf, which are both of minor importance, although the percentage in the Abu

Floos was 111 in 1979, while the other was only built in 1980. All these facts make it necessary to expand the capacity of Iraqi ports to face the continuing increase in imports and exports.

Passenger Transport

The total number of passengers arriving and departing through the Iraqi ports decreased greatly during the period 1950-1960 (by 42%), and it also declined substantially during the period 1960-1974, as shown in Table 6.5*. This is part of an international pattern of decline in passenger ship movement with the exception of short distance ferries. In 1970, the passengers were 41% of their 1960 number, and 17% of the 1950 number. While in 1974 they were only 42% of their number in 1970, 18% of the 1960, and 7% of the 1950 numbers. Moreover, in 1974, the monthly average number of passengers, was only 198, of which 114 were departing, and 85 arriving.

The great decline in the number of passengers during the 1960's and 1970's reached such a low level in 1974, that this kind of transport is no longer of economic significance.

Oil Ports

Oil production and exports in Iraq have been affected mainly by the political issues that have taken place, nationally, regionally and internationally, since oil production started in 1927. Crude oil exports began in 1934 from Kirkuk oilfields in the north of Iraq, and were piped

* The data about passenger transport by vessels are available up to 1974 only.

TABLE 6.5 NUMBER OF PASSENGERS ARRIVING AND DEPARTING
THROUGH IRAQI PORTS

Year	Arrived	Departed	Total
1960	8,212	5,372	13,584
1961	9,444	4,670	14,114
1962	8,728	6,265	14,993
1963	4,624	3,667	8,291
1964	6,808	4,557	11,365
1965	8,287	4,420	12,707
1966	7,088	3,382	10,470
1967	5,017	2,895	7,912
1968	5,362	2,765	8,127
1969	3,642	2,820	6,462
1970	4,078	1,532	5,610
1971	3,363	2,033	5,396
1972	2,956	3,257	6,213
1973	2,502	1,426	3,928
1974	1,015	1,365	2,380

Source : Annual Statistical Abstracts (Iraq), for the years 1960-1974.

across Syria and Jordan to the Eastern Mediterranean terminals. Oil exploration, production, transportation and marketing were controlled by foreign oil companies represented by the Iraq Petroleum Company (IPC) and its associated companies, the Mosul Petroleum Company (MPC) and the Basrah Petroleum Company (BPC). The IPC group represented a consortium of British, Dutch, French and American oil companies. The major oil field controlled by the group was at Kirkuk with subsidiary production from the Jambur, Bai Hassan, Ain Zalah and Butmah fields (see Fig. 6.2). The IPC concession in Iraq dates from 1925 but relations between the oil companies and the Government were first comprehensively formalized in 1952. The companies undertook to pay the Government 50% of their theoretical profit (based on posted prices).⁽⁶⁾ In 1951 the Basrah Petroleum Company started oil production from the Al-Zubair field and Al-Rumaila field, both in Basrah Region,⁽⁷⁾ with a total of 37,814 tons, of which 33,785 tons were piped to the Fao Port and exported, 4.1% of the total oil exports of Iraq in that year, (see Table 6.6). In December 1961, the Government passed Law No.80, under which the companies' area of operations was restricted to their producing oilfields, less than 0.5% of their previous area. With Law No. 97 of 1967, the Government's oil policy changed direction. Under this law the Iraq National Oil Company (INOC), a state oil company formed in 1964, was given exclusive rights over all areas except those left to IPC in Law No.80. In 1968, INOC began exploiting the rich North Rumaila field in

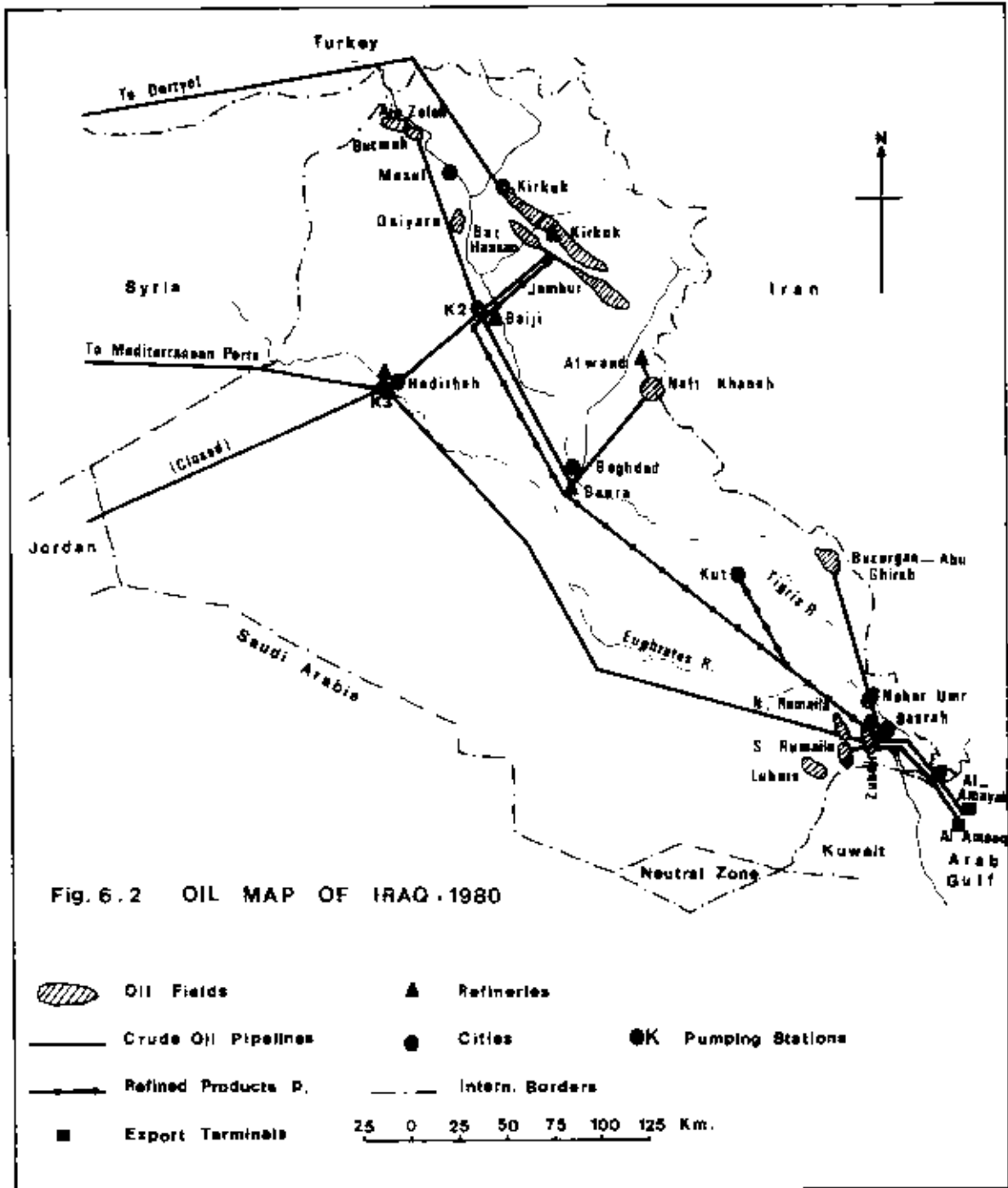


Fig. 6.2 OIL MAP OF IRAQ, 1980

Source: After An Arab - British Chamber Of Commerce Publication (1980).

TABLE G.6 NUMBER OF TANKERS DEPARTING FROM IRAQI PORTS AND QUANTITIES OF CRUDE OIL CARRIED, 1951-1975

Year	Fao Port		Khur Al-Amaya Port		Total		National Total Exports Long Ton0000
	Quantity Long Ton 000	No. of Tankers	Quantity Long Ton 000	No. of Tankers	Quantity Long Ton 000	No. of Tankers	
1951	55	32	-	-	33	32	7,900*
1952	2,137	208	-	-	2,137	208	15,688
1953	2,862	244	-	-	2,862	244	25,985
1954	4,452	366	-	-	4,452	366	28,690
1955	6,948	525	-	-	6,948	525	30,963
1956	8,168	536	-	-	8,168	536	29,068
1957	8,936	600	-	-	8,936	600	19,237
1958	4,395	628	-	-	4,395	628	33,255
1959	4,934	663	-	-	4,934	663	39,171
1960	4,597	600	-	-	4,597	600	44,492
1961	3,965	521	-	-	3,965	521	45,800*
1962	3,065	108	730	59	3,795	467	45,938
1963	1,614	203	3,478	255	5,092	458	53,256
1964	511	61	6,408	447	6,919	511	58,247
1965	77	8	7,042	477	7,119	485	60,674
1966	163	18	9,349	559	9,512	577	64,100*
1967	720	76	7,438	406	8,164	482	56,636
1968	-	-	6,772	373	6,772	373	09,278
1969	-	-	6,890	338	6,890	338	69,727
1970	-	-	7,133	346	7,433	346	72,100
1971	-	-	12,515	542	12,515	542	78,100
1972	1,010	107	13,207	542	14,226	649	67,300
1973	2,538	237	15,299	530	17,837	767	93,200
1974	7,929	245	41,340	458	49,278	703	89,600
1975	6,978	117	46,348	475	53,326	592	99,400

Source : Annual Statistical Abstracts (Iraq) for the years 1951-1975.

* Mahmood, T.S., Economics of the Petroleum Exporting Countries OPEC, Baghdad, 1979, pp. 164-170.
 (-) This means that there were nil quantities of crude oil exported from Fao Port or Al-Amaya Port.

Basrah Region, which now has a production capacity of 42 million tons a year. The U.S.S.R. has participated in the development of this field under an agreement signed in 1969. A protocol of 1971 provided for the second stage of the Rumaila development, further exploration and a link from the Nahr Umr field to the North Rumaila - Fao pipeline. Production from North Rumaila began in the second quarter of 1972. Meanwhile, under an agreement signed with INOC, the French firm ERAP began drilling in 1968 near Basrah, and discovered oil at Buzurgan, Abu Gharab and Sjeba. The Buzurgan and Abu Gharab fields were to come on stream at the end of 1976, and were linked to the deep water terminal by a pipeline, as shown in Figure 6.2.⁽⁸⁾

After the 17th July 1968 Revolution, the Government decided to take control of the oil industry in Iraq, and on 1st June, 1972 IPC was nationalized, and renamed the Iraq Company for Oil Operations. On 1st March 1973, MPC was also nationalized and attached to the Iraq Company for Oil Operations. When the Arab-Israeli war of October 1973 started, the Government nationalized the American, and Dutch interests in BPC, and transferred them to INOC which became the owner of 43% of the total shares of BPC.⁽⁹⁾ On 8th December 1975, BPC was completely nationalized.⁽¹⁰⁾ Thus, Iraq has completed control of all its oil resources.

Total oil production in Iraq, consequently, has greatly increased since 1958. It was 20.2 million tons in 1957, 33.5 million tons in 1958, and 44.8 million tons in 1960. By 1970 output had reached 75.2 million tons, but in 1971

it increased sharply to 82.4 million tons following agreements between the Government and the oil companies on higher production targets for the southern oilfields. A sharp decline in production in 1972 to 71.2 million tons was caused by disputes between IPC and the Government. With the IPC and MPC nationalized, and aided by the output from the new North Rumaila field, production reached 97.8 million tons in 1973. Output fell to 95.5 million tons in 1974, due to the loss of international markets because of the nationalization of BPC in late 1973. In 1975 production picked up to reach 109.2 million tons. Due to the Buzurgan oil field's coming on stream in 1976, output increased to 119.2 million tons. This new field's output averages between 8 million and 15 million tons per year. Output in 1977 fell back to 98.7 million tons, but increased to 130 million tons in 1978. A new INOC field, the Lahis field, came on stream in April 1978 with an initial capacity of 2.5 million tons. There have also been reports of a major oil strike in Basrah which could be one of the biggest in the Middle East. However, initial claims of 2,000 million barrels of reserves for this field have been reduced to 1,000 million.⁽¹¹⁾ Iraq is the fourth largest oil reserve in the Middle East, and the fifth in the World. In 1979 the proven crude oil reserves in Iraq totalled 31,000 million barrels (4,133 million tons),* 4.8% of the total oil reserves in the world, compared with 66,420 million barrels being the total oil reserves in Saudi Arabia, the largest oil exporter in the world.⁽¹²⁾ In 1980 (before the war) Iraq was the

* 1 ton = 7.5 barrels.

second largest producer in the Middle East. Crude oil output was 3.7 million barrels/day (180 million tons a year); and with 3.5 million b/d (170 million tons a year) being shipped out of the country, Iraq was also the second largest exporter (after Saudi Arabia). The productive capacity is estimated at 4 million b/d. (13)

One of Iraq's weaknesses has been its dependence on the transit routes to the Eastern Mediterranean terminals at Tripoli and Baniyas. Accordingly, a new strategic pipeline between Haditha and Fao was planned to provide a terminal on the Gulf. This was completed in December 1975 and it was proposed, in the absence of agreement with Syria on transit, to switch Kirkuk exports to the Gulf terminal. This new pipeline allows Iraq to market crude oil from both its northern and southern oil fields at either Mediterranean or Gulf prices, whichever are the more advantageous, thus giving a greater flexibility to Iraqi crude oil marketing. The total capacity of this pipeline is about 47 million tons a year from the southern fields to Haditha, and about 50 million tons a year from Haditha to the Gulf terminal; it has a diameter of 42 inches and is 650 kms. long. Another strategic pipeline linking the Kirkuk fields in the north across southern Turkey to the Turkish port of Dortyol, was opened in December 1976, with a capacity of 35 million tons a year and a length of 985 kms. (14) Also, there is the Kirkuk-Mediterranean pipeline through Syrian territory, closed in 1976, 1980 and 1982 because of a dispute with Syria over transit fees and other political issues. The capacity of this pipeline was developed from 45 million tons to

55-60 million tons a year. An oil pipeline linking the Baghdad and Basrah refineries was opened in March 1977. It is 545 kms. long, and was built to carry four oil products - gas oil, kerosene, benzine and super-benzine.

As a result, the Iraqi oil exports have increased substantially since the early 1970's. However, as shown in Table 6.6, oil exports through the Iraqi oil ports at the Arab Gulf, started in 1951 when Fao Port, the first oil port, opened. In 1961, oil exports through this port reached 3,965,000 tons, 8.6% of the total oil exports of Iraq, and 12015% of the oil exports through Fao Port in 1951. By 1962 a new oil port was opened, Khur Al-Amaya, in Iraqi deep water territory, to dock tankers with a draught of 15.85 metres, compared with a depth of 10.66 metres available at Fao Port. The total capacity of the Al-Amaya terminal is about 60 million tons annually. As shown in Table 6.6, the importance of the port of Al-Amaya in exporting crude oil, has increased greatly, while the importance of Fao Port decreased sharply since 1963. During the period 1968-1971 exporting operations through Fao Port were stopped completely. Since 1972, these operations have been restarted and the quantities of crude oil shipped from this port have increased substantially due to the increase in oil production from the southern oil fields, as already mentioned. In 1972, the total oil exports from the Gulf terminals, both Fao and Al-Amaya, reached about 14 million tons, 21% of Iraqi total oil exports, and 375% of the total exports from these two ports in 1962. Exports reached 17 million tons in 1973, but increased sharply to 49 million tons in 1974, and

53 million tons in 1975, forming 19%, 55% and 54% respectively of Iraqi oil exports. In 1976, a new Gulf terminal called Deep Port, was opened at the Iraqi territorial deep water, as shown in Figure 6.2, which is capable of loading six 1/4 million tons oil tankers at one time. The total capacity of this terminal is about 100 million tons annually. Thus the total capacity of the Gulf terminals has increased to about 200 million tons a year. Since 1976, when the Mediterranean deliveries through the Kirkuk pipeline across Syria to Tripoli were suspended, as already mentioned, most of Iraqi crude oil exports have been shipped at the Gulf terminals, and the remainder shipped at a Turkish terminal. In 1978, for instance, more than 100 million tons of crude oil were exported from the Gulf terminals, and the remaining less than 30 million tons were shipped at the Turkish terminal.

In the light of the above facts, the Gulf oil terminals are the most important because they are located within the national boundaries, while the Mediterranean terminals are located in foreign lands. Therefore, oil exports through the Mediterranean terminals are affected mainly by the nature of the political relations between Iraq and the states in which the terminals are found. In addition, Iraq has to pay these states oil transit fees. However, oil exports through the Gulf terminals are also affected by the conditions navigation in the Arab Gulf, as took place during the Iraqi-Iranian War, when Iran closed the Strait of Hormuz in the face of the Iraqi maritime foreign trade through its Gulf

terminals, as mentioned previously. Iraq, accordingly, was forced to reopen the pipelines across Syria to export its crude oil at Tripoli and Baniyas, as well as exporting oil through the Turkish terminal.

INOC's activities too, extend beyond the exploration for and production of crude oil. In 1972 it established an autonomous company to be responsible for the operation and management of a tanker fleet. In 1977, the Iraqi Oil Tankers Company (IOTC) had 16 oil tankers with a total tonnage of 1,585,000 tons, and capacities ranging between 35,000 - 155,000 tons. These tankers were delivered from Spain, Sweden and Japan. This company, whose headquarters are located in Basrah City, intends to buy new tankers for oil and gas.

River Transport

Water used to be the key factor for communications in arid lands. The two great rivers of Iraq have therefore always formed the natural routes for migration and conquest between the Mediterranean and the Arab Gulf. These two rivers run from the north to the south of Iraq; most settlements are located on them, particularly in the middle and southern parts of the country; here they are surrounded by the most important agricultural areas, and join the Gulf by the Shatt Al-Arab. Thus the chief aid to movement in Iraq in the past was river transport. In Basrah Region river transport is of greater importance than anywhere else in the whole of Iraq, because vast marshlands cover the northern half of the Region, and parts of the Tigris and Euphrates rivers, as

well as the Shatt Al-Arab river run through the Region.

Navigation on the waterways of Iraq dates back to beyond classical times and some of the types of craft still in use are very ancient. The development of steamship traffic on the Tigris was the consequence of Colonel Chesney's classical journey in 1836 by steam paddle boat down the Euphrates from Birecik to Basrah and thence up to Baghdad. During the nineteenth century the Tigris service was provided by the British company of the Lynch Brothers. During the War of 1914-1918 the Inland Water Transport arranged a river supply service, and built the port of Basrah, repair workshops and several fuel depots for the Tigris steamers, as well as organising river conservancy involving dredging, traffic control, lighting, etc. (15)

After World War I, river transport continued to be the most important form of movement of people and goods, and steamer services have been maintained on the Tigris up to Baghdad. But the development of other kinds of transport, particularly roads and railway, has led to greatly reduced river traffic and to the neglect of river conservation.

As noted in Table 6.7, the number of each kind of river craft in Iraq had decreased since 1950, except for small motor boats which have increased slightly during the last three decades. The total tonnage of river crafts in the early 1970's remained at an average similar to its average in the 1950's. During 1958-1968 a remarkable increase in the total tonnage took place. This can be attributed solely to the increased total tonnage transported

TABLE 6.7 NUMBER OF LOCAL CRAFTS NAVIGATING IN IRAQI WATER AND REGISTERED AT THE DIRECTORATE GENERAL OF NAVIGATION

Year	Non-Motor Crafts				Motor Crafts			Grand Total	
	Sail- ing Boats	Shakh- tor*	Barges	Total	Vessels	Boats	Total	No.	Tonnage (In Tons)
49/50	1,181	135	472	1,788	212	431	643	2,431	148,749
50/51	1,167	130	476	1,773	208	484	692	2,465	149,207
51/52	1,089	134	503	1,726	200	472	672	2,398	150,083
52/53	1,083	135	505	1,723	198	478	676	2,399	150,413
53/54	1,076	134	507	1,717	202	484	686	2,403	150,823
54/55	1,055	164	520	1,739	183	500	683	2,422	153,988
55/56	1,038	162	535	1,744	186	515	701	2,445	157,835
56/57	1,017	150	542	1,709	162	678	840	2,549	157,985
57/58	966	142	544	1,619	64	715	779	2,398	149,546
58/59	929	176	583	1,688	205	733	938	2,626	276,434
59/60	642	176	591	1,409	171	709	880	2,289	273,181
60/61	661	158	629	1,448	201	871	1,072	2,520	288,511
61/62	833	151	629	1,613	195	902	1,097	2,710	288,121
62/63	684	150	740	1,304	177	972	1,149	2,453	341,377
63/64	764	134	500	1,398	176	968	1,144	2,542	266,473
64/65	767	124	480	1,371	165	961	1,126	2,497	257,492
65/66	762	109	479	1,350	155	978	1,133	2,483	226,531
66/67	773	116	469	1,358	147	1,006	1,153	2,511	226,470
67/68	755	107	460	1,322	139	1,047	1,186	2,508	224,726
68/69	693	107	471	1,271	149	1,071	1,220	2,491	153,014
69/70	708	111	466	1,285	149	1,057	1,206	2,491	156,990
70/71	701	106	457	1,264	161	1,039	1,200	2,464	158,292
71/72	-	-	-	-	-	-	-	-	-
1973	686	103	438	1,227	151	996	1,147	2,374	-
1974	677	99	429	1,205	166	1,006	1,172	2,377	-
1975	667	98	453	1,218	166	988	1,154	2,372	-
1976	660	98	461	1,219	195	1,026	1,221	2,140	-

Source : Annual Statistical Abstracts (Iraq) for the Years 1950-1976.

(-) The data are not available.

* Rectangular river crafts.

from Basrah Port to Baghdad on the Tigris, as shown in Table 6.8. Iraqi imports rose greatly during that period, while road transport was still not extensive enough to meet that increase, and the railway capacity was also limited. However, since the early 1970's the importance of river transport, both between Basrah and Baghdad and in Iraq as a whole, has declined greatly. As noted in Table 6.9, in 1975 the quantities of goods loaded by river transport between Basrah and Baghdad, the most important route, decreased to 25% of the total quantities loaded in 1972, in spite of the substantial increase in imports and internal trade at that time, as mentioned previously. Moreover, at present, river transport is very limited, used mainly in the marshlands and for short distances on the rivers, as roads firstly, and railways secondly, are the main kinds of transport in Iraq.

The decreasing importance of river transport, both in Basrah Region and Iraq, compared with the other kinds of transport, can be attributed to several factors. The attractions of modern transport (air, road, and rail), particularly their speed, have made them to be strong competitors to river transport. By contrast, river transport in Iraq suffers from several problems which have greatly reduced its competition to the other forms of transport. These problems are :

1. The variation in the rivers' discharge during the year, as mentioned in Chapter one. During the low-water season which lasts about six months a year, suitable depth of water for crafts, particularly the largest such as barges,

TABLE 6.8 STEAM-PROPELLED RIVER CRAFTS NAVIGATING BETWEEN
BASRAH AND BAGHDAD AND NUMBER OF JOURNIES MADE

Year	Number of Crafts	Number of Journies		
		Downstream	Upstream	Total
1949/50	53	395	398	793
1950/51	54	190	180	370
1951/52	42	208	201	409
1952/53	42	203	200	403
1953/54	38	200	196	396
1954/55	36	212	212	424
1955/56	36	224	224	448
1956/57	41	229	229	458
1957/58	213	1,307	1,307	2,614
1958/59	209	816	816	1,632
1959/60	213	1,025	1,025	2,050
1960/61	264	1,105	1,105	2,210
1961/62	270	979	979	1,958
1962/63	246	887	887	1,774
1963/64	240	599	599	1,198
1964/65	275	1,100	1,100	2,200
1965/66	246	991	994	1,988
1966/67	202	921	924	1,848
1967/68	202	835	835	1,670
1968/69	99	415	415	830
1969/70	238	367	367	734
1970/71	95	286	286	572

Source : Annual Statistical Abstracts (Iraq) For the Years 1950/1971.

TABLE 6.9 QUANTITIES AND KIND OF GOODS LOADED BY RIVER
TRANSPORT, BAGHDAD-BASRAH ROUTE (IN TONS)

Kind of Goods	1975		1974		1973	
	Upstream Journeys	Downstream Journeys	Upstream Journeys	Downstream Journeys	Upstream Journeys	Downstream Journeys
Palm Oil	25,014	-	32,966	-	23,491	-
Fuel Oil	990	-	4,810	-	-	-
Animal Fat	1,000	-	-	-	-	-
Paper pulp	-	-	600	-	3,145	-
Bunker coil	-	-	2,630	-	4,997	-
Iron Powder	-	-	320	-	9,550	-
Steel wire	-	-	-	-	1,415	-
Iron	-	-	-	-	1,258	-
Gas Oil	-	-	-	-	1,530	-
Salt	-	-	-	-	1,680	-
Bricks	-	-	-	-	-	870
Corn	-	-	-	-	-	750
Wood	-	-	244	-	321	-
Other	-	-	-	-	476	660
Total	27,004	-	41,570	-	47,869	2,280
Total of 1972	87,513	22,154				

Source : Annual Abstract of Statistics (Iraq), for the year 1976 Table 19/26, p.118.

is not available in the whole country, except in Basrah Region, where the Tigris and Euphrates rivers are navigable for river transport throughout the year, as well as the Shatt Al-Arab which is navigable for ocean-going vessels.

2. The sediments deposited continuously on the river beds, have reduced the depth of water suitable for river navigation.

3. The rivers have narrow and numerous bends which affect traffic, particularly large craft.

4. The rivers have many other difficulties which make navigation impossible or difficult and dangerous, such as ledges and occasional gorges with rapids, islets, conglomerate bars, shoals, islands etc.

5. Because several large reservoirs have been built in Turkey, Syria, and Iraq to store water from the Tigris and Euphrates rivers, the discharge of the rivers, particularly in Iraq, has decreased greatly, even in the high-water seasons, with a corresponding decrease in sediment deposition.

6. Suitable wharves for docking river crafts and modern techniques for loading and unloading crafts, are not available.

Significant development in river navigation in Iraq has not taken place up to the present. The exception is in the section of the Tigris between Baghdad and Basrah where some progress has been made, such as building earth dams on both sides of the river, and barrages on some canals taking water from the river. But all these processes are not enough to develop navigation fully in this most important section.

In Basrah Region all river crafts available in Iraq can be used, particularly on the Tigris and Euphrates, through-

out the year. In the marshlands, because of their shallow water, only small crafts can be used, such as small motor boats, and light crafts called Mashufs. The importance of river transport in the Region differs from place to place. In the marsh areas it is greater than in the rest of the Region, because water transport is the sole means of moving people and goods. The marsh people also use water transport to travel to the adjacent settlements, particularly urban centres, such as Qurna, Mudaina, Huwear, Hartha, and Diarre. Every family in the marsh areas has at least one Mushuf, while many families have more. Nevertheless, at present, because of the development of road transport, vehicles can reach the seasonal marshlands, especially during the low-water season. This development has greatly affected river transport between the marshlands and other areas.

On the Shatt Al-Arab river transport is still important to move people and their goods from one side to another. Because this river is very wide, and used for ocean-going vessels, it is difficult to build a bridge across it except for Khalid Ibin Al-Walid Bridge which is beyond Basrah Port, where the maritime transport ends. The section between Basrah City and Shatt Al-Arab City is the most important in transporting people; this whole topic will be discussed in Chapter 8. Small motor boats and ferries are used between these two cities. Barges are also used to transport goods from vessels docking in mid-river to the wharves found on the river sides, and vice versa. Sail boats are sometimes used to transport dates on the Shatt Al-Arab.

On the Tigris, as a part of the river transport route between Basrah and Baghdad, traffic has declined greatly, as already mentioned. Locally, on the Tigris and Euphrates rivers, navigation is confined mainly to transporting the marsh people to the adjacent settlements, and sometimes to transport dates. Recently, on these two rivers reeds have been transported from the marsh areas to the paper factory.

Railways

Before 1914 there was only a 121 kms. section of standard-gauge railway under construction between Baghdad and Samarra, part of the strategic 'Baghdad Railway', the concession for which had been obtained by the German-controlled Anatolian Railway in 1902. During the War of 1914-1918 urgent construction was undertaken to meet the war needs for transport. Several lines were built during the war, including Basrah-Nasiriya, and Basrah-Qurna-Amara. When the war ended some of these lines were removed, like the Basrah-Qurna-Amara line, while others were extended such as the Basrah-Nasiriya extension to Baghdad on the Euphrates river. The immediate problem was to convert this system into one suited to peacetime needs and development, taking into consideration the financial limitations of the country and the necessity for post-war economy.

Up till 31 March 1923 the railways were under the administration of the British Government. From that date they were administered by the Iraqi Government, though they remained the property of the British Government until March 1936 when the Iraq State took over ownership of the railways (16)

In 1936 the Iraqi State Railways comprised the metre-gauge and standard-gauge sections as planned in the re-organization in the early 1920's. The metre-gauge lines were divided at Baghdad into southern and northern parts. The southern part was a single-track line from Maqil (Basrah) to its Baghdad terminus. The northern line ran, and still runs from Baghdad to Kirkuk, with a branch to Khanaqin, 8 km. from the Iranian boundary. The total length of the metre-gauge sections was about 979 kms. The standard-gauge line, 213 km. long, ran only from Baghdad to Baiji. In 1940 the extension of this line to Mosul and then to Tel Kotehck on the Syrian frontier was completed, to link up Iraqi railways with Turkish railways. The total length of standard-gauge railway in 1940 was about 536 kms. After the Second World War, the 105 km. extension of the Baghdad-Kirkuk line to Erbil was begun and completed in 1949. Thus, the grand total length of railways (both metre and standard-gauges) in Iraq was 1,620 kms. in that year, of which 75 kms. were in Basrah Region, part of the Basrah-Baghdad line which was 569 kms. long.

In 1959, the Iraqi Government signed an agreement with the USSR to build a standard-gauge railway between Basrah and Baghdad. This project aimed to increase the speed of passenger trains from 55 kms. per hour to 100 kms, and the speed of goods trains from 40 kms. to 70 kms. It aimed also to increase the transport capacity from 2.5 million tons to 10 million tons a year. In 1966 this new line was opened for goods trains, while the passenger trains operation was delayed until 1968 for reasons related to the project

execution.⁽¹⁷⁾ This line links Baghdad, Basrah, and Um-Qassir, and is 642 kms. long, of which 130 kms. are in Basrah Region. The metre-gauge line between Basrah and Baghdad had been gradually removed until the mid 1970's. Thus, the total length of the main railways decreased from 2,278 kms. in 1973, to 1,790 kms. in 1975, and 1,589 kms. in 1978, of which 1,129 kms. were standard-gauge line and 460 kms. metre-gauge line.⁽¹⁸⁾ The first line runs from Um-Qassir via Basrah to Baghdad, Mosul and Al-Yaarobiya on the border between Iraq and Syria, and is part of the International railways linking Iraqi railways with European railways through Syria and Turkey. The second line runs from Baghdad to Erbil. Basrah Region has only 130 kms. of railway, 8% of the total track length in Iraq as a whole (see Fig. 6.3).

It is clear that a significant development in the railways length has not taken place in Iraq. Large areas of the country are lacking in railways, such as areas surrounding the Tigris river between Basrah and Baghdad, which is one of the most important populated and cultivated areas in Iraq. The other areas lacking railways can be seen in Figure 6.3. In Basrah Region, although the population is concentrated along rivers, all these areas are lacking in railways. There are only two track lines, as shown in Figure 6.4. One of them runs for 50 kms. from Um-Qassir to join the Basrah-Baghdad lines at Shiaba and is used for goods trains. Although it is very important for transporting goods, it runs through areas that are unpopulated or have a low population density. The Basrah-Baghdad line, which is 74 kms. long in Basrah Region runs at the edge of the Zubair plateau where there are

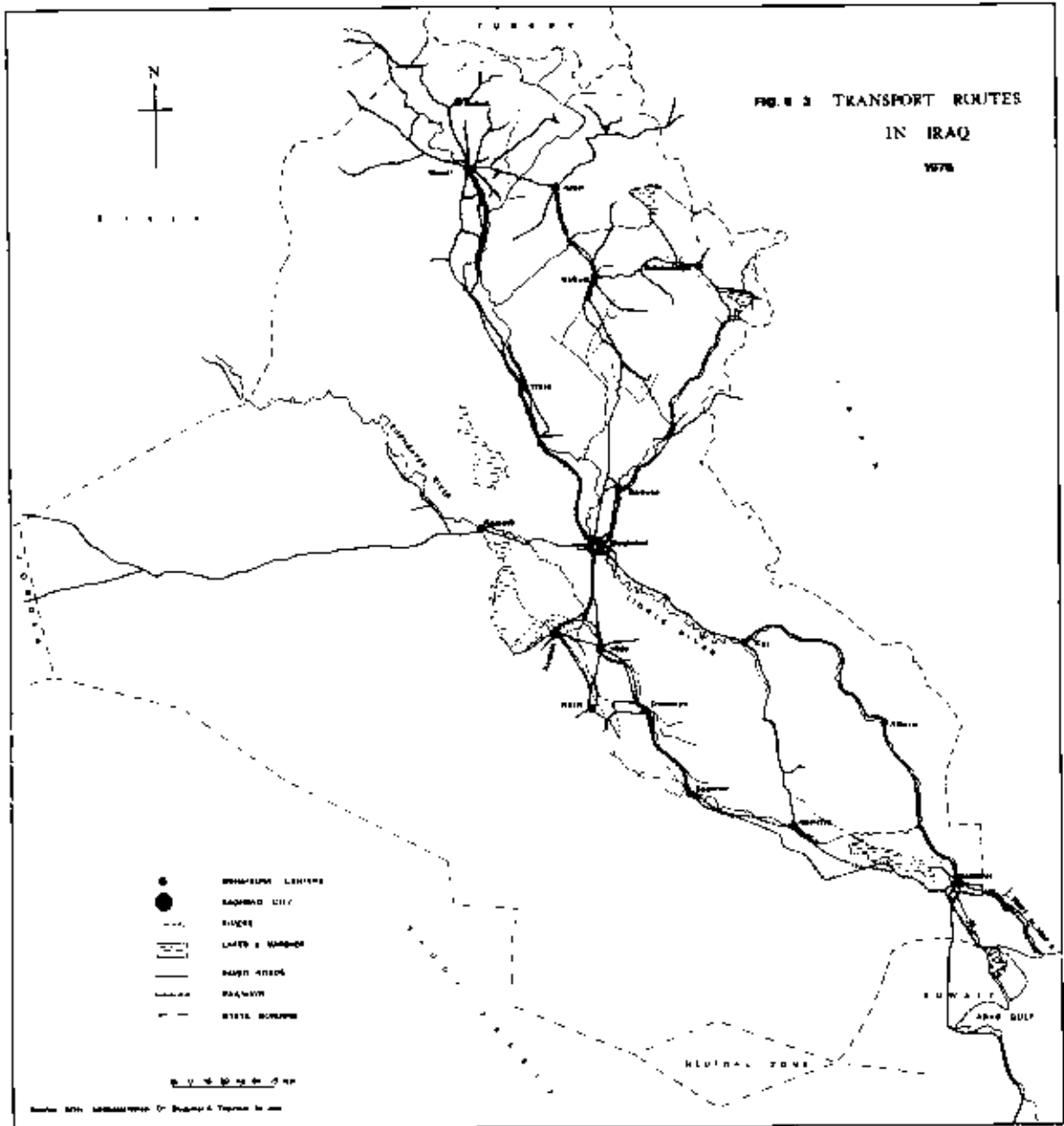
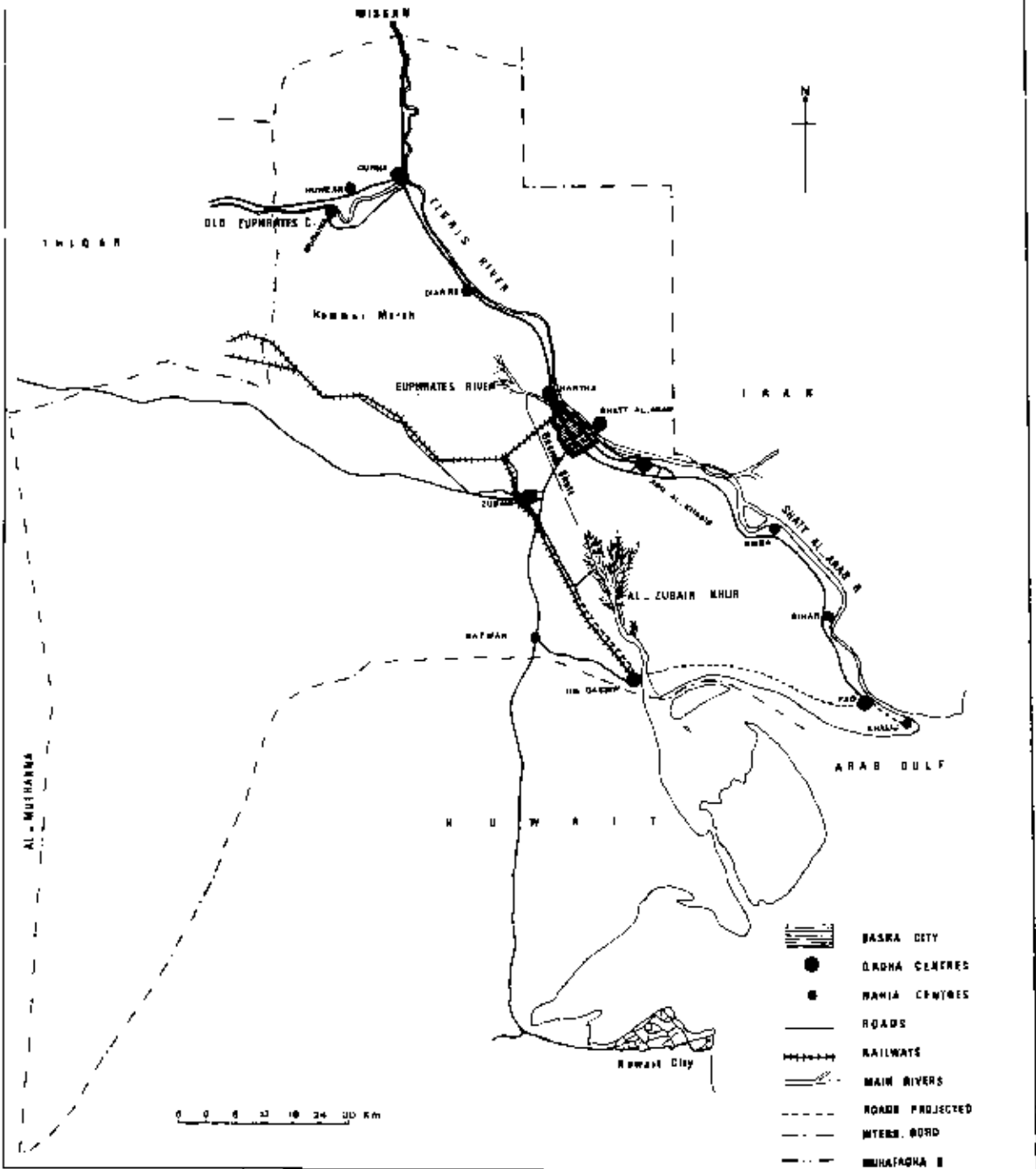


FIG. 6.4 TRANSPORT ROUTES IN BASRAH REGION 1980



Source: After Directorate of The Roads & Bridges in Basrah Province.

very few small settlements set up for the people working on the railways, as mentioned in Chapter three. As noted in Figure 3.1 which shows the distribution of settlements in the Region, the areas found along the Shatt Al-Arab, Tigris and Euphrates rivers are those which have most need for railway construction.

Moreover, one of the most important problems facing the railways, in both Basrah Region and Iraq as a whole, is that they are generally single track. This hinders operations, and thus reduces the speed and transport capacity of the lines, compared with double track lines.

Passenger Transport

In Iraq, railways, despite their problems, had played a major part in transporting passengers until 1958, when the other kinds of transport were insufficient to meet the country's needs. However, as a result of the development of roads, the increase in the number of vehicles and internal journeys operating between Baghdad, Basrah, and Mosul, the total number of the passengers transported in trains decreased greatly during the 1960's. In 1960/61 the total number of passengers decreased by 33% of the number in 1950/51, and by 57% in 1968/69. However, after 1969/70 the number of passengers started to increase greatly, as shown in Table 6.10 and Table 6.11, particularly during the period 1972 - 1977. This can be attributed to the increase of traffic accidents on roads, and the inability of the Iraqi airways to meet the increasing passengers' needs, both of which will be discussed later. Since 1978 the number of passengers has begun to decrease again, because of a new state establishment which

TABLE 6.10 QUANTITIES OF GOODS CARRIED BY RAILWAYS, TON KILOMETRES, NUMBER OF PASSENGERS, AND NUMBER OF PASSENGERS KILOMETRES IN IRAQ

Year	Passengers		Goods	
	No. of Passengers (000)	No. of Passengers Kilo-metres(000)	Quantities of Goods (tons 000)	No. of Ton Kilometres (000)
1949/50	3,609	517,932	2,149	659,318
1950/51	3,809	531,197	2,052	647,341
1951/52	3,447	501,312	2,161	725,999
1952/53	3,017	474,419	2,218	710,558
1953/54	3,014	524,990	2,519	855,014
1954/55	3,405	570,285	2,663	843,296
1955/56	3,733	676,350	3,000	837,010
1956/57	3,322	604,699	2,779	765,994
1957/58	3,546	658,370	2,851	908,620
1958/59	3,240	573,587	2,984	817,818
1959/60	3,277	656,496	2,361	758,091
1960/61	2,558	554,499	2,712	813,060
1961/62	2,708	590,387	2,419	693,325
1962/63	2,523	529,882	3,473	721,800
1963/64	2,292	483,977	2,500	758,257
1964/65	2,156	431,185	2,339	818,255
1965/66	2,018	443,697	2,828	1,008,804
1966/67	1,827	431,185	2,858	1,079,131
1967/68	1,695	366,716	2,993	1,131,252
1968/69	1,623	366,846	3,015	1,032,140
1969/70	1,831	368,743	3,105	1,193,857
1970/71	2,126	469,033	3,216	1,310,028
1971/72	2,375	538,475	3,472	1,513,628
1972/73	3,878	621,719	3,321	1,380,000
1973/74	3,597	632,551	3,746	1,616,772
1974/75	2,938	644,816	4,236	1,871,138
1975	3,519	703,764	5,122	2,252,490
1977	3,524	797,315	5,085	2,254,119
1978	3,380	820,557	5,376	2,496,668

Source : Annual Statistical Abstracts (Iraq) for the years 1950-1978.

TABLE 6.11 **NUMBER OF PASSENGERS TRANSPORTED BY RAILWAY AND
NUMBER OF PASSENGER KILOMETRES, BASRAH-BAGHDAD**

Year	Number of Passengers (000)	Number of passenger kilometres (000)	Percentage of Iraqi total	
			No. of Pass.	Pass./km.
1960/61	1,429	317,908	56	58
1961/62	1,370	327,305	51	53
1962/63	1,183	249,837	47	47
1963/64	1,091	217,859	48	47
1964/65	1,046	203,847	48	48
1965/66	931	182,215	46	41
1966/67	921	166,152	45	41
1967/68	757	149,983	45	41
1968/69	744	172,355	46	49
1969/70	1,061	248,232	58	67
1970/71	1,258	363,614	59	78
1971/72	1,360	416,367	57	77
1972/73	2,263	490,415	58	79
1973/74	2,270	504,463	63	80
1974/75	1,927	522,963	66	81
1976	1,593	514,293	45	73

Source : Annual Statistical Abstracts (Iraq), for the
years 1970-1976.

runs modern comfortable coaches to transport passengers between cities. Because of the railways' problems, particularly the low speed of trains,* people have come to prefer travelling in these coaches rather than on trains.

The Basrah-Baghdad line, as shown in Table 6.11, is the most important track line in Iraq in terms of the number of passengers and number of passenger kilometres. Although the data concerning the separate lines are only available for the period 1960-1976, this table can show the relative importance of the Basrah-Baghdad line compared with the other lines as a whole. Although the proportion differs from year to year, it has never been below 45% of the total number of passengers in the whole of Iraq, and it rose to more than 60% in 1973/74 and 1974/75. In addition, the proportion of passenger kilometres was high, particularly during the period 1969/70-1976. This importance can be attributed to the Basrah-Baghdad line linking the two most important cities in the country, and linking large numbers of medium and small cities found in the highest population density area.

It is clear that the number of passengers travelling on trains, and the possibility of railways competing with other kinds of transport, particularly road transport, in this area, will depend upon development of all aspects of the railways. Such development should include expanding the system to provide links with different populated areas in the country. It should also include building double track lines instead of single lines to increase trains' speed and transport capacity,

* For instance, the journey between Basrah and Baghdad by train takes, on average, 10 hours and sometimes 12 hours, while it takes only 6-7 hours by car or coach. At 1980 prices, it cost 10 l.s., 1.5, and 2.5 by train, coach and car respectively.

providing comfortable coaches, and improving conditions of railway stations, etc.

Goods Transport

As the importance of passenger transport has changed in time for reasons already mentioned, so goods transport importance has also varied, as shown in Table 6.10. Until 1958, the quantities of goods carried by the railways in Iraq had increased because of increased agricultural production and goods imported. River and land transport, as mentioned previously, had problems which made them unable to compete with the railways. After 1958, the quantities of goods had decreased as a result of the development of road transport which led to the reduced costs of vehicle transport, compared with the still undeveloped railways. But, because of the nationalization in 1964 of the large productive establishments, which were obliged by the Government to transport their products and goods by railways, the quantities of goods carried by railways have increased. Moreover, the execution of the development programmes which has taken place in Iraq since 1969, led to greatly increased imports, which also increased the quantities of goods carried by railways, as shown in Table 6.10 and Table 6.12, in spite of the competition of land transport. Another reason for the increase is that all sulphur exports are carried by railway directly from the mines of Sharqat in northern Iraq to Um.Qassir Port, as mentioned previously.

The Baghdad-Basrah-Um Qassir line, as shown in Table 6.12, is, of course, the most important track line in Iraq in terms of quantities of goods and the number of ton/kilometres

carried. This is because this line links Iraqi ports which are found only in Basrah Region with areas of importance, as already mentioned.

It is also clear that the future of the railways will depend upon their development which should aim to increase transport capacity and services.

TABLE 6.12 QUANTITIES OF GOODS CARRIED BY RAILWAYS
AND NUMBER OF TON/KILOMETRES, BASRAH-BAGHDAD

Year	Quantity (Tons 000)	Ton/kilom- eters (000)	Percentage of Iraq	
			Quantity	Ton/km.
1969/70	1,675	629,233	54	53
1970/71	2,032	896,332	63	68
1971/72	2,333	1,068,349	67	71
1972/73	1,955	736,000	59	53
1973/74	2,445	1,012,602	65	63
1974/75	3,095	1,200,996	71	61
1976	3,431	1,385,876	67	62

Source : Annual Statistical Abstracts (Iraq)
for the years 1971-1976.

Roads

There was an almost complete lack of wagon-roads or permanent bridges in Iraq before 1900, and even in 1914 wheeled traffic south of Baghdad was mostly confined to the roads from that city to neighbouring cities. There was hardly a motor car in the country. During the 1914-18 War many roads were made passable for cars in dry weather, but except in the Basrah area little could be done in the way of consolidating, or road-surfacing. Roads have been greatly improved since 1918.⁽¹⁹⁾ In 1930 in Iraq there were about 7,000 kms. of earth-surfaced roads, of which only 270 kms. were metalled by stones and gravel. During the period 1930-1950, asphalt began to be used for metalling roads, particularly as Iraq has plenty of this material. In 1950, there were 2,300 kms. of asphalt-metalled roads in Iraq, most of which were found in the northern part of the country where asphalt is mined. In addition, there were 7,700 kms. of earth-surfaced main roads and secondary roads in that year.⁽²⁰⁾ In Basrah Region there were no asphalt-metalled roads until 1950, except for a few found in some cities, particularly Basrah City.

Since 1950, when the Development Board was established and the oil revenues started increasing, the Government has undertaken to build modern roads and bridges throughout the country, of a high standard. In 1968 the total length of modern roads was 2,900 kms. in Iraq, on average, 160 kms. were built each year during the period 1950-1968. Out of the 2,900 kms. about 300 kms. were old roads (asphalt-

metalled roads), and the remaining 2,600 kms. were earth-surfaced roads. Whereas the "old" roads length decreased to about 2,000 kms. in 1968, since the trend in state policy has been to build modern roads. For the same reason the length of earth-surfaced roads declined to 5,100 kms. (21)

Since 1968 a remarkable development in road building has taken place throughout Iraq, particularly after 1973, when oil revenues rose rapidly. In 1975, Iraq had 4,928 kms. of modern roads, and 2,149 kms. of modern roads under construction, while the total length of "old" roads and earth-surfaced roads decreased to 1,790 kms. and 2,974 kms. respectively. (22) By 1977 the total modern roads length increased greatly to 6,610 kms, while the "old" roads length because some of these were modernized, decreased to only 770 kms. The remaining 7,743 kms. consisted of earth-surfaced roads and roads under construction. Although the data about the length of roads under construction in 1977 are not available, it can be said, compared with the figures of 1975 and in the light of the roads development that took place in that time, that roads under construction made up more than two-thirds of the 7,743 kms. (23) From 1977 to the present, roads and bridges have advanced greatly, although the data about the road lengths are unavailable, so that Iraq now has a suitable modern road network linking most of the settlements.

Basrah Region has shared in these developments: roads and bridges have increased and been improved greatly since the late 1950's. In 1958 the Basrah-Amara modern road was opened, of which about 110 kms. are within Basrah Region. It is a

part of the road linking the Arab Gulf countries, Iraqi ports, Basrah City, with Baghdad, in particular with the rest of the country on the one hand, and with the Eastern Mediterranean Sea, on the other. On this road within the Region, two great modern bridges were built, one of them across the old course of the Euphrates at Qurna City in 1958, and the other across the Euphrates at the northern extreme of Basrah City in 1965. In 1972, Basrah Region had 314 kms. of modern roads, 81 kms. of old roads, and 262 kms. of earth-surfaced roads, which formed about 10%, 4% and 5% respectively of the total roads in the whole of Iraq. (24) In 1980 there were 518 kms. of modern roads, 20 kms. of old roads, and 508 kms. of modern roads under construction. (25) After the execution of all these roads, Basrah Region will have a suitable roads network linking all its populated and economically exploited areas, except for areas found east of the Tigris river, and many settlements in the marshes. A large number of bridges have been built in the Region, but Khalid Ibin Al-Walid Bridge, as mentioned previously, and Al-Zubair Bridge across the Shatt Al-Basrah (see Fig. 6.4) have been built to a very high standard of modern technology.*

However, although this great development of roads has taken place in Iraq recently, the serious problem still facing transport on roads, both in Basrah Region and Iraq, is that most of the roads are single carriageways. There are a few roads with dual carriageways for short distances, but Iraq, at present, has no motorways. The seriousness of this problem will be much clearer when the traffic on roads and

* Khalid Ibin Al-Walid Bridge, for instance, cost about ID10 million, was built by a West German Company, and opened in 1978.

increase in the number of vehicles are discussed in the next section. In 1980, the Region had only one dual carriageway, of 15 kms. between Basrah City and Zubair City. The second lanes of the Zubair City-Safwan road and the Basrah-Qurna-Amara road were under construction in that year, to make dual carriageways in these two directions, as part of state policy to solve the traffic problems which are increasing seriously at present.

Transport Vehicles on Roads

To evaluate the development of roads, a comparison should be made between this and the development of vehicles and population growth.

As noted in Table 6.13, the number of different vehicles, in both Basrah Region and Iraq, has increased continuously since 1950. A remarkable increase in their number has taken place since 1974, since the standard of living has risen as a result of the rapid rise of the oil revenues. In 1978, the total number of vehicles in the Region increased by 559% of their total number in 1950, and 125% of the number in 1973, compared with the increase of 1341% and 208% respectively in Iraq as a whole.*

For comparative purposes, because the data relating to the roads in Iraq for the year 1978 are not available, the figures of 1977 are employed. The 1977 Iraqi population total represented 230% increase over 1950, where the total paved roads length increased by 321%, and the total number of

* The high proportion of increase in Iraq as a whole compared to the Region can be attributed to the relatively low standard of living in Basrah Region in comparison to that in some other regions in the country.

TABLE 6.13 NUMBER OF VEHICLES IN BASRAH REGION AND IRAQ,
1950-1978*

Year	Basrah Region			Iraq			Total	
	Private Buses & Cars	Taxis	Private Lorries	Private Buses & Cars	Taxis	Lorries		
1950	762	1,212	774	2,748	5,698	7,194	5,307	19,089
1951	620	1,162	759	2,541	6,160	7,900	6,485	20,445
1952	809	1,193	729	2,731	8,127	7,919	7,331	23,377
1953	1,077	1,282	920	3,274	8,335	8,591	7,529	24,455
1954	1,635	1,252	1,268	4,165	13,965	7,733	8,212	29,910
1955	2,018	1,522	1,185	4,725	15,338	8,576	9,043	32,957
1956	2,307	1,612	1,204	5,123	17,569	9,697	10,543	37,809
1957	2,513	1,647	1,202	5,392	19,356	10,046	10,869	40,271
1958	2,795	1,771	1,254	5,820	23,011	10,767	12,214	45,992
1959	3,030	1,961	1,362	6,353	24,253	11,668	13,173	49,094
1960	3,217	2,259	1,525	7,001	30,612	14,623	14,938	60,173
1961	3,529	2,518	1,807	7,854	34,306	19,832	16,829	70,967
1962	3,703	1,604	2,146	7,453	35,227	20,192	18,529	73,948
1963	3,882	1,882	2,028	7,853	36,202	21,913	17,325	75,443
1964	3,830	1,232	3,710	8,802	35,804	20,944	17,473	74,221
1965	4,207	2,128	4,843	11,178	38,350	24,542	26,014	88,900
1966	4,395	2,315	5,045	11,755	40,557	27,148	27,543	95,248
1967	4,400	2,330	5,094	11,824	42,202	27,473	30,054	99,819
1968	4,480	2,304	5,115	11,899	42,642	28,056	31,306	102,004
1969	4,721	2,356	5,319	12,396	44,229	29,209	32,496	105,931
1970	4,507	2,281	5,257	12,045	46,024	30,640	32,731	109,395
1971	4,922	2,370	5,367	12,659	50,136	32,604	33,687	116,427
1972	4,922	2,514	5,090	12,526	52,176	34,620	34,239	121,035
1973	4,793	2,653	4,839	12,285	52,512	36,406	34,419	123,567
1974	5,012	2,867	4,743	12,622	61,062	40,261	33,764	137,087
1975	6,435	2,532	5,684	14,651	73,127	44,251	43,063	160,411
1976	5,950	3,193	5,087	14,230	80,549	49,905	42,543	172,907
1977	5,602	4,899	2,989	13,490	114,120	56,282	54,326	224,930
1978	6,929	5,095	3,331	15,359	130,377	61,311	64,182	256,165

Source : Annual Statistical Abstracts (Iraq) for the years 1950-1978

* The figures in this table include only private vehicles, because the data about publicly owned vehicles for all the years above are unavailable.

vehicles greatly increased by 1,178%. It should be noted the proportion of increase in the roads' length was higher than that in the total population, but it was very much lower than that in the total number of vehicles. It should be mentioned here, that the figures in Table 6.13 include only private vehicles, while the state has a large number of different vehicles (publicly owned vehicles). In 1973, for instance, the publicly owned vehicles totalled 18,000, increasing to 25,000 in 1974, and 38,000 in 1975. (26)

In Basrah Region, according to the available data, in 1980 the total population increased by 276% of their total number in 1950, while the roads' length increased by 538% in the same period. In 1978 the total number of vehicles increased by 559% of their total number in 1950. Although the proportion of increase in the roads' length was much higher than the increase in the total population, it was lower than that in the total vehicles. It should be noted that the number vehicles, in both Iraq and Basrah Region, has increased since 1978, and their total number has not included the publicly owned vehicles,* as already mentioned, and has not also included the number of transit vehicles entering and leaving Iraq through Basrah Region. In 1974 the total transit vehicles entering and leaving through Safwan, the border city in Basrah Region, was 59,311, increasing to 86,583 in 1975, and 107,325 in 1976, which formed 53%, 49%, and 53% respectively of the total transit vehicles in the whole of Iraq. (27)

* The data about publicly owned vehicles in Basrah Region are not available.

In the light of the above facts, and taking into consideration that most of the roads, in both Iraq and the Region, are single carriageways, the seriousness of the problem facing traffic on the roads can be imagined. The increasing number of traffic accidents is a good indication of the increasing seriousness of that problem. These accidents are attributed mainly to the nature of the roads, as already mentioned. In 1973, there were 3,026 traffic accidents in Iraq, increasing greatly to 7,218 in 1975, and 14,477 in 1978. In Basrah Region it increased from 202 accidents in 1973 to 626 in 1975, and 1,755, or about 14% of the total accidents in Iraq, in 1976. (28)

Traffic intensity on the roads in Basrah Region differs from one road to another, depending upon the direction of the road and the nature of the areas which it passes through. Accordingly, the Basrah-Qurna-Amara-Baghdad road is the most important for reasons already mentioned. The Basrah-Zubair-Nassiria-Baghdad road is the second most important; it was paved and opened in 1978. To decrease the high traffic intensity on the first road, the traffic authorities have transferred some goods vehicles, particularly publicly owned vehicles, to the second road. The Basrah-Zubair-Safwan road is the third, since it links Iraq with Kuwait on one hand, and with the Um-Qassir Port on the other. The Basrah-Zubair road, therefore, is of high traffic intensity, because it is a section of the second and third roads, as well as linking Basrah City with Zubair, the second in terms of total population in the Region. Sometimes traffic intensity on this section is higher than that on the other roads in

Basrah Region. At present, the Basrah-Fao road, which was paved and opened in 1978, is very important. Its importance can be attributed to the increase in Iraqi foreign trade which led to expanding the port activities, as mentioned previously, as this road links Fao Port and the wharves found on the Shatt Al-Arab with Basrah. In addition, it links the settlements found west of the Shatt Al-Arab between Basrah and Fao. The Qurna-Chabaish-Nassiria road on the old course of Euphrates, is less important at present. The importance of this road will increase when the local authorities paved the whole road, as most of it is still earth-surfaced. The local people living in the northern part of Basrah Region, will prefer to use this road when it is completely paved, because it is shorter for them than the other roads linking this part of the Region with, in particular, Baghdad and surrounding areas. In addition, this road links Thiqar Region with Basrah Region, and is used by a large number of people living in Chabaish City and surrounding areas. They used river transport (on the old course of the Euphrates) before the early 1960's, when the road was earth-surfaced for the first time.

Table 6.14 and Figure 6.5 show the relative importance of roads in Basrah Region in terms of traffic density and number of passengers transported by privately owned vehicles. Although for 1974 only, it can be used as a general indicator in this field.

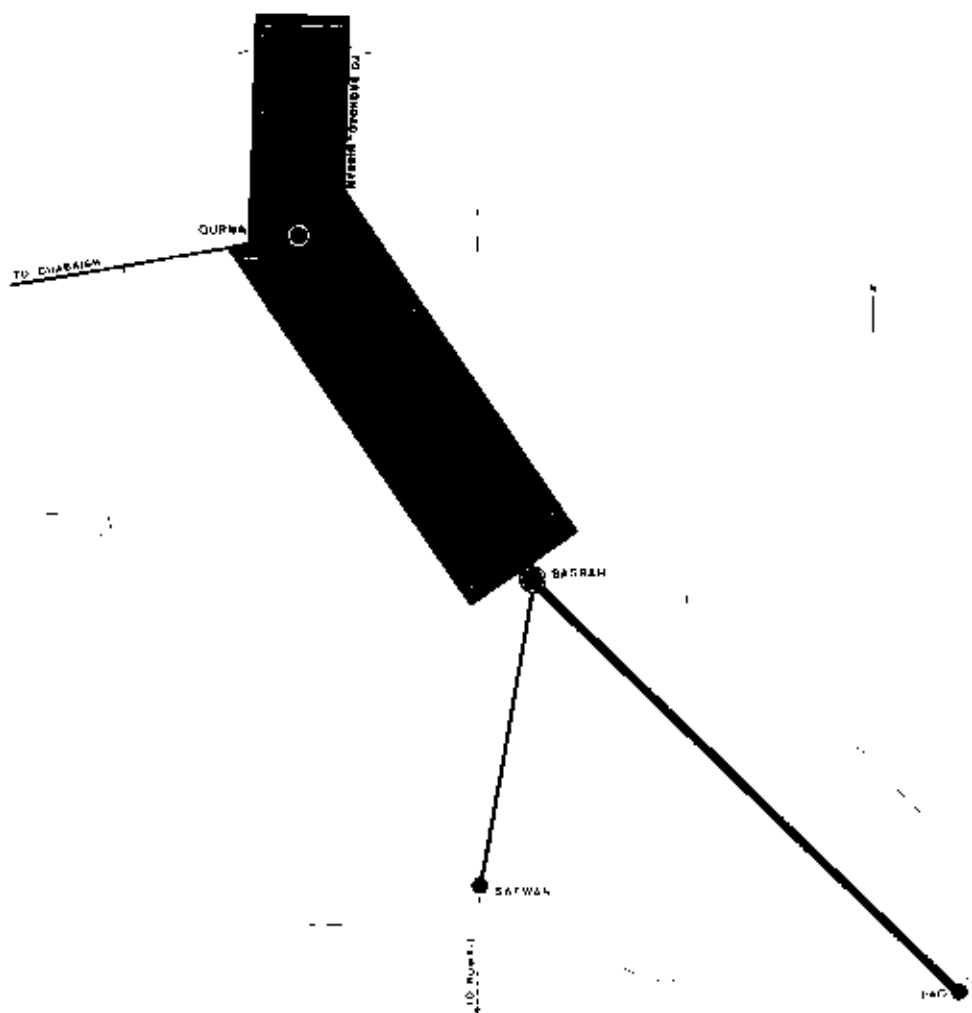


FIG. 5 MOVEMENT OF PASSENGERS
ON ROADS IN BASRAH REGION
1974

- INTERNATIONAL BORDERS
- MAIN ROADS
- 40,000 PASSENGER STRIPS
- CITIES

0 5 10 15 20

BY PRIVATELY OWNED VEHICLES

TABLE 6.14 MOVEMENT OF PASSENGERS BY PRIVATELY OWNED VEHICLES
ON ROADS BETWEEN CITIES IN BASRAH REGION IN 1974

Roads	No. of vehicles in the mid-year	No. of Trips	No. of Pass- engers
Basrah-Baghdad	280	34,437	660,923
Basrah-Missan	134	31,260	461,565
Basrah-Safwan	126	6,099	30,495
Basrah-Qurna	176	25,746	408,983
Basrah-Chabaish	27	5,526	27,675
Basrah-Fao	71	8,152	89,419
Total	814	111,220	1,679,060

Source : Ministry of Planning, Statistics of Movement of
 Passengers by Private Owned Cars on Roads
 Between Cities in Iraq, 1974, p.20.

Passenger Transport on Roads

Usually, the number of vehicles per thousand of population is used as a measure to evaluate the development of the country in terms of number of vehicles, in comparison with other countries. Accordingly, this measure shows how far the available vehicles are able to meet the needs for transport facilities in both the Region and Iraq.

In 1950, in Iraq there were 4 vehicles per thousand of population, increasing to 11 in 1968, and 19 in 1977. In Basrah Region the rate was 7, 16, and 13 in those years respectively. By contrast, in 1977 in France it was 364, UK 288, Kuwait 337, Hungary 91, Yugoslavia 98, Jordan 34, Syria 11, Turkey 17, and Egypt 9.*⁽²⁹⁾

* The data concerning Syria, Turkey, and UK are for 1976.

It is clear that in Iraq the rate had increased during the period 1950-1978. Nevertheless, in comparison with many countries such as the above, it is a very low rate. On the other hand, Iraq, as an oil producing country, should have a higher rate than that in the poor countries such as Egypt, Turkey, Syria and Jordan, etc. Moreover, at present, a very large number of foreign migrants are living in Iraq, as mentioned previously. Therefore, there is great pressure on the vehicles on the roads because of increasing needs for various kinds of transport. It should be noted that in 1978, in Basrah Region the rate was lower than the rate in Iraq as a whole. The reason can be attributed to the population growth rate in the Region which was higher than that in Iraq as a result of migration, as mentioned in Chapter two. In addition, the growth rate of the total vehicles in the Region was lower than that in Iraq for reasons already mentioned.

According to the available data, in 1973, the total number of passengers using transport on the roads in Basrah Region (except for transport inside cities), was about 1,038,000, increasing to 1,679,000 in 1974, and 4,598,000 in 1976 : this formed 3%, 5%, and 7% of the total number in Iraq.*⁽³⁰⁾ In addition, the publicly owned coaches are contributing to transport people whether within the regions of Iraq or between regions. In Iraq there are two kinds of these coaches, one of them owned by local authorities in each region, called Passenger Transport Administrations.

* The data include only the number of passengers transported in privately owned vehicles.

In 1976, Basrah Region had 154 coaches, 29 of which were operating to transport passengers between Basrah City and the rest of the Region. The number of passengers transported by those coaches totalled 15,266,000, 3,703,000 of whom were transported between Basrah and its region; these formed about 5%, and 10% of the total number in Iraq in 1976.⁽³¹⁾ In Iraq the number of coaches increased from 1,756 in 1976 to 2,312 in 1978, or by a rate of 132%, while in Basrah Region their number increased only from 154 to 160, or 103% during that period.⁽³²⁾ Moreover, not all coaches in the Region are in operation, because of some technical and administrative reasons. It should be noted that only about 50% of the total coaches were in operation in 1980.

The other kind of coaches are owned by a central authority, the General Establishment for Passengers Transport (GEPT), which has branches in each provincial centre in Iraq.* These coaches are provided to transport passengers only between province centres. Although the data about the total number of passengers transported in these coaches is unavailable, it can be noted that in 1980 there were about 20 coaches operating between Basrah and Baghdad daily, to transport about 40 passengers per coach. This means the total of passengers in these coaches is about 288,000 a year. All these coaches use the Basrah-Nassiria-Baghdad road, as already mentioned.

Other indices can be added to throw more light on the high pressure facing passenger vehicles. For instance, in

* This establishment was set up in 1977.

1976, the number of passenger vehicles (privately owned) which were in operation (except inside cities) in Basrah Region, was 662 a day, with an average of 676 trips per vehicle a year, and 6,946 passengers per vehicle a year. (33) In the same year, in the coaches owned by the Passengers Transport Administration (PTA), the rate was 3,240 trips per coach a year, and 127,690 passengers per coach a year.

It is clear that people, in both Basrah Region and the whole of Iraq, are suffering from transport problems, which is one of the main problems facing the country at present, both in terms of the number of vehicles, and the capacity of roads. In Basrah Region such problems seem to be more serious than those in some regions of Iraq. This can be attributed mainly to three reasons : firstly, Basrah Region has all Iraqi ports and oil terminals on the Arab Gulf; secondly, the road linking the Gulf Countries with the Eastern Mediterranean Countries, through Iraq, extends across Basrah Region; thirdly, the Region has witnessed a great industrial development which, of course, needs transport facilities, and thus, has contributed to an increase in the congestion problems.

Goods Transport on Roads

The great development in different sectors which has taken place in Iraq since the early 1970's, has led to a great increase in the quantities of goods transported by all types of transport throughout the country. The importance of goods transport on roads in Iraq has greatly increased recently. This is attributed to the problems facing railway and river transport, already mentioned, compared with the good qualities

by which transport on roads is characterized, particularly its speed and flexibility. These qualities are very important to save the time and costs which have to be spent in railway and river transport, as these two kinds of transport involve numerous stages. In addition to the great development of vehicles in terms of speed and conditions, there has also been an improvement in the size of goods vehicles. In Iraq, at present, there are goods vehicles operating on roads of sizes up to 36 tons.

Data about the quantities of goods transported on roads are not available in both Basrah Region and Iraq. However, the quantities of goods transported by publicly owned vehicles can be used as an indice of the importance of this kind of transport, although the relevant data are only available for a few years. The establishment responsible for this type of transport throughout Iraq is the General Establishment for Land Transport (GELT); it has a large number of vehicles of various sizes,* 400 of which are allocated to Basrah Region. In 1973, the quantities of goods carried by the establishment's vehicles in Iraq totalled about 550,000 tons, increasing to 930,000 tons in 1974, and 1,373,000 tons in 1975.⁽³⁴⁾ The quantities of goods transported by these vehicles from Basrah Region to the rest of Iraq and vice versa, form the highest proportion of the total quantities transported between all regions of the country. In 1973 the proportion was 82%, 90% in 1974, and 70% in 1975. This is attributed, of course, to the existence of the Iraqi ports in Basrah Region. Therefore, the number of goods vehicles operating

* The total number of the establishment's vehicles is unknown.

between the Region and the other regions sometimes reaches about 1,000, including the 400 vehicles allocated to the Region, as took place in 1980.*

A significant development in goods transport on roads has taken place recently, in both Basrah Region and Iraq, in terms of number of vehicles, (see Table 6.13). Nevertheless, this kind of transport is still suffering from some problems. In addition to the problems relating to roads, as already mentioned, the available number of goods vehicles is still not enough to meet the increasing demand for them. The very high prices of goods vehicles in Iraq have reduced the possibility of the private sector entering this field. Thus there has been a great rise in the cost of goods transport. For instance, the ton transport cost for some 100 km distance, which was ID 2 in the late 1960's, increased to ID 15 in the late 1970's. The high prices of goods vehicles in Iraq are attributed mainly to the very high custom tax imposed on imported vehicles which reaches 300% of the price of some types of vehicles. High prices are also due partly to inflation.

Accordingly, transport on roads will continue to suffer from congestion problems if the transport capacity remains at its present level. The capacity of roads needs to be greatly increased in terms of building new roads and expanding existing ones. On the other hand, to meet the increasing needs for transport on roads, the number of vehicles should be greatly increased. This can be solved in two ways at the same

* The data were obtained by the author from the Transport Union (headquarters) in Basrah Region in September 1980.

time : firstly, the government should increase the number of publicly owned vehicles. secondly, the private sector should be encouraged to increase the number of its vehicles by reducing the customs tax, and thus reducing the price of vehicles; and the state banks should offer loans for the purchase of private vehicles.

Airways

Iraq's global location has meant that it played an important part in air transport in the past, particularly in the 1940's and 1950's. It was on the air route between Western Europe and India, Australia and the Far East. In January 1927 the first regular air-service from Britain to Baghdad was opened. Early in 1928 the first mails by air were carried to India. In the late 1930's Iraq had three airports : Baghdad and Basrah were the main airports,* while the Mosul airport was a minor one, used as an internal feeder service. In 1939 there were six foreign companies operating on the air routes to or through Iraq,** and using Baghdad Airport or Basrah Airport, or both. (35)

In that time, the Iraqi Airways establishment was set up by the Government, with aircraft used for internal transport and piloted by foreign staff. In 1947, Iraqi Airways started external transport on a limited scale to some adjacent Arab Countries. In 1956, as a result of an increase in Iraqi Airways' potential, the air routes expanded to reach some European countries, when more new aircraft were bought, and staff-

* Basrah airport was opened in 1936 (36)

** These companies were : 1. Imperial Airways (British) 2. K.L.M. (Dutch) 3. Ala Littoria, S.A. (Italian). 4. Misr Airwork S.A.E (Egyptian) 5. Air France (French) 6. Deutsche Lufthansa (German)

ing was developed as Iraqis were employed instead of foreigners. At present, Iraqi Airways dominates all the internal air transport in Iraq, and most of the external air transport as will be discussed later.

A significant development in the Iraqi airports has not taken place, except for building the Baghdad International Airport which opened in 1970. Basrah and Mosul airports have remained in their original conditions. In fact, Basrah Airport has become unsuitable for air traffic, whether for old or modern aircraft. This is because its airstrip has become impossible for aircraft to land on and take off, and repairs have not been carried out. This inattention is mainly due to the location of the airport itself, as it is now inside Basrah City as a result of urban growth (this will be discussed further in Chapter 8). Therefore, its present location causes an unacceptable level of aircraft noise to the population in the surrounding residential areas, and it is impossible to expand the airport at this location. Thus, the authorities have transferred the airtraffic to the Shiaba Airforce Base as a temporary solution, while Basrah Airport still offers routine services to passengers, including transporting them to the Shiaba Base by Iraqi Airways owned buses. Accordingly, the State has provided a plan to develop the Iraqi airports, including building three new airports : in Baghdad, Basrah, and Mosul. At present Baghdad airport is under construction, while the building of the other two airports has not started.* The authorities suggest that the

* The primary amount allocated to build Baghdad airport was about ID 450 million, while it was ID 25 million each, for Basrah airport and Mosul airport.

best site of the new Basrah Airport is west of Basrah City.

Air Traffic

As noted in Table 6.15, the importance of airtraffic through Iraqi airports increased greatly during the 1950's. Baghdad and Basrah airports were important because of their location, as already mentioned, besides aircraft, at that time, needed to land at several airports during their long journeys. Although foreign company aircraft were using both Baghdad and Basrah airports, the latter was the most important for these companies because of its location. In 1956, for instance, the number of passengers in transit at Iraqi airports was about 40,000, of which 30,000 passengers were at Basrah Airport, 75% of the total, and 10,000 passengers were at Baghdad Airport, which was the most important for internal air transport. (37)

However, the Table shows that airtraffic in Iraqi airports declined greatly during the period of 1958-68. This was due to the unstable internal political situation and lack of economic growth in Iraq at that time, unlike the period after 1968, as discussed previously. Consequently, the importance of airtraffic has increased greatly in Iraq as a whole since 1968. In addition, the great development in aircraft manufacture has made it unnecessary for planes to land at several airports as in the past. This fact has reduced the importance of Iraqi airports for transit passengers. In 1966 the number of this kind of passenger in Iraq was 7,027, all of whom passed only through Basrah Airport. There were no transit passengers in the other airports which

TABLE 6.15 : AIR TRAFFIC AT BASRAH AND ALL IRAQI AIRPORTS
DURING 1950-1978

Year	Basrah Region			Iraq		
	No. of Aircraft	No. of passengers	Goods & Excess Baggage (in kgs)	No. of Aircraft	No. of passengers	Goods & Excess Baggage (in kgs)
1950	3,360	59,022	184,482	5,443	110,362	552,755
1951	2,815	57,768	154,434	5,943	179,234	506,322
1952	-	-	-	5,333	106,722	634,028
1953	2,807	63,372	128,082	5,995	106,295	639,933
1954	3,260	80,712	210,759	6,991	133,085	899,267
1955	2,768	61,521	172,479	6,716	136,440	904,291
1956	3,053	74,350	218,680	7,813	155,448	948,550
1957	2,903	83,472	279,378	9,015	220,203	1,666,993
1958	2,056	60,102	264,610	7,273	173,694	1,765,290
1959	-	-	-	-	-	-
1960	-	-	-	-	-	-
1961	1,114	38,296	10,239	3,585	149,918	270,612
1962	955	33,438	149,483	3,905	208,220	1,496,662
1963	1,164	42,519	11,376	4,439	174,299	206,997
1964	750	39,878	107,708	4,028	189,599	1,783,458
1965	838	29,312	74,212	3,744	167,686	1,876,519
1966	1,921	31,034	87,893	4,520	164,804	1,350,576
1967	576	27,566	113,648	3,132	154,935	1,891,960
1968	936	33,503	166,432	4,085	230,719	2,627,729
1969	796	35,007	106,643	4,132	245,562	2,916,474
1970	-	30,722	91,227	3,198	230,084	3,244,264
1971	914	35,687	147,377	4,031	254,164	3,283,752
1972	933	55,273	213,762	4,549	313,380	3,546,455
1973	1,517	75,837	229,572	5,782	406,958	4,067,838
1974	1,506	103,413	228,814	6,141	530,425	6,506,157
1975	1,167	112,054	199,991	7,979	636,853	15,583,129
1976	931	167,170	430,000	7,442	839,863	14,358,000
1977	-	-	-	7,563	1,045,032	15,509,000
1978	-	-	-	8,398	1,122,826	21,522,000

Source : 1. Annual Abstracts of Statistics (Iraq), for the years 1950-1978.
2. Central Statistical Organization (Iraq), Bulletin of Statistics of Transport and Communications 1960-1969 and some projections for 1970-1975.

confirms the relative importance of Basrah airport in Iraq in spite of its lack of modernisation. The number of transit passengers using Iraqi airports in 1974 decreased to 4,179, all of whom also passed through Basrah Airport⁽³⁸⁾ because some modern international airports were set up in the areas surrounding Iraq, such as in Kuwait and the United Arab Emirates. Recently no transit passengers have passed through Basrah Airport because of using the Shiaba Base as an airstrip, as already mentioned, for security reasons.

Accordingly, in the light of these facts, Basrah Airport has been used only for internal air transport, particularly between Basrah and Baghdad, and Baghdad Airport is the only one to be used for external air transport in the whole of Iraq.

Concerning internal air transport, Basrah Airport is second only to Baghdad in importance as shown in Table 6.16.

TABLE 6.16 NUMBER OF PASSENGERS TRAVELLING INSIDE IRAQ
BY IRAQI AIRWAYS

Year	Baghdad-Basrah			Baghdad-Mosul			Baghdad-Basrah Percent- age of Iraq
	Arrived	Departed	Total	Arrived	Departed	Total	
1966	7,362	7,662	15,024	239	162	401	97.4
1967	6,424	6,831	13,255	1,540	1,500	3,040	81.3
1968	7,641	8,423	16,064	2,912	2,724	5,636	74.0
1969	9,530	10,246	19,776	6,340	5,953	12,293	61.6
1970	8,587	8,465	17,052	3,972	3,508	7,480	69.5
1971	15,780	15,161	30,941	6,864	6,152	13,016	70.3
1972	27,062	26,672	53,734	12,727	11,116	23,843	69.2
1973	32,209	30,881	63,090	10,846	9,876	20,722	75.2
1974	45,004	43,099	88,103	11,974	9,440	21,414	80.4
1975	53,360	54,340	107,700	24,917	19,519	44,436	70.7
1976*	85,439	81,731	167,170	22,649	18,453	41,102	80.2

Source: Annual Abstract of Statistics (1975), Table 14/18, p.295.
* Annual Abstract of Statistics (1976), Table 19/21, p.444.

Generally, internal air transport in Iraq has increased greatly due to the rising standards of living in Iraq. In 1967 the number of passengers transported by Iraqi Airways inside Iraq totalled 16,295, increasing to 24,532 in 1970, and 170,306 in 1978,⁽³⁹⁾ this formed 10.5%, 10.6%, and 15.2% respectively of the external air transport of Iraq.

Table 6.16 shows that internal air transport at the three Iraqi airports increased greatly, and that the Baghdad - Basrah line is the most important. This fact confirms the national importance of Basrah airport.

In the light of the above fact, air transport services in Iraq, both internal and external, should be greatly developed to meet the increasing needs. This development should include building new modern airports at several places in the country, and increasing the transport capacity of the Iraqi Airways fleet, both for passengers and goods. Furthermore, a modern international airport should be set up in Basrah Region, in order to recover at least a part of the previous importance of Basrah Airport, and to be able to compete with other airports in the area surrounding Iraq, particularly in the Gulf Countries.

Conclusion

The indices used in this chapter have obviously shown the great increase of needs for transport facilities in Iraq, particularly in Basrah Region. Recognizing the crucial infrastructural role of an efficient transport system, the state has recently taken an increasing interest

in its internal transport development. Nevertheless, transport of all kinds in Basrah Region and Iraq as a whole is still suffering from several problems. Congestion is the most serious problem which will continue for many years if transport development remains at its present relative level compared with the higher relative levels of development of the other sectors. This problem is more serious in Basrah Region than in other regions, mainly because it includes all Iraqi ports, through which passes most foreign trade, and partly because of its great industrial importance in the country. As a result, the congestion problem facing transport in Basrah Region affect commercial and economic movement, not only in the Region, but also in the whole country. So transport development needs to take place in two ways : firstly, within the Region; secondly, between the Region and the rest of Iraq.

Although the capacity of Iraqi goods ports has increased in recent years, they are still unable to meet the great increase in foreign trade. As a result, in 1980, for instance, a high proportion of Iraqi imports arrived through ports in Kuwait, Jordan and Turkey. Even the Iraqi oil ports, all of which are in Basrah Region, were unable to ship all the crude oil exported from Iraq in that year, in spite of the great development in the capacity of these ports. Thus, a significant proportion of crude oil was exported through

Turkish and Syrian oil terminals. Of course, such a situation is usually affected by the political relations between Iraq and these countries. For example oil exports through Syrian terminals were stopped in the 1970's and also in 1980 and 1982.

River transport has never received attention: suffering from several problems, particularly those relating to the nature of rivers in Iraq, besides the more positive attractions of the other forms of transport, has greatly reduced its importance. So, it can be said there is no real commercial river transport in Basrah Region or in Iraq as a whole, except for that which takes place on the Shatt Al-Arab river, which is navigable for ocean-going vessels.

Despite the importance of railways as a key form of transport, this sector has been neglected in Basrah Region and Iraq as a whole. In addition to the inadequate level of services offered by railways, the capacity of this sector falls far short of the increasing needs for this form of transport, for both passengers and goods. Railways throughout the whole country are still single track. This, of course, hinders operations, and reduces the speed and transport capacity of the lines compared with double track lines' potential.

The investment emphasis has been mainly on transport on the roads. So, significant development in road and bridge building has taken place in the Region and the whole country in recent years. However, the emphasis has been on increasing the length of roads rather than their quality. Most of the roads are still single carriageways, only a few roads have

dual carriageways for short distances, and there are no motorways. At the same time, the rate of increase in the number of vehicles on the roads has been much higher than that in road capacity. As a result, congestion has been the most serious problem facing traffic on the roads, and the increasing number of traffic accidents is a good indication of the increasing seriousness of that problem.

Despite the great economic importance of Basrah Region, which is an important populated area, including the second largest city in Iraq, it, in fact, has no airport at present. The runway of Basrah Airport has not been suitable for operation for many years, and although before the Iraqi-Iranian war started, the Shiaba Air Force Base was also used for civilian purposes, there were serious difficulties.

To achieve a comprehensive regional development, and to facilitate the increasing movement of people and goods throughout Basrah Region, great changes must take place in the transport sector in the Region. Such changes have to include development in transport capacity and services. Building double track lines, increasing the speed and number of trains for both passengers and goods, as well as improving the conditions and facilities in all railway stations and increasing their number, should all be considered if the potential of railways is to be realized. This form of transport will have to be a key one in the Region to link all the ports with the rest of Iraq, because of the great potential of railways for transporting freight, which can reduce the pressure on road transport.

Transport on the roads has a crucial regional infrastructural role for movement of people and goods throughout Basrah Region, and development of this sector should produce an expansion of regional integration, particularly between Basrah, the key city in Basrah Region, and the rest of the Region which is dominated by the former's influence. Thus, there needs to be a greater emphasis on increasing the length of roads, building dual carriageways and motorways, and increasing the number of vehicles, particularly those publicly owned than is presently the case. In addition, related service establishments, such as bus and filling stations, should be developed.

A greater emphasis on developing the capacity of the Iraqi ports, both goods and oil ports, will have to be made by the state in order to pass all the country's maritime foreign trade through the national ports. This situation requires development of all Iraqi goods ports, particularly Fao and Um-Qassir, because they have greater potential for capacity expansion than Basrah Port. This is due to the fact that they are deep water ports, whereas large ships can not reach Basrah port where the water of the Shatt Al-Arab can not take ships with a draft of more than 32 feet. The same can be said for the offshore oil terminals in the territorial waters of Iraq which have great potential for development in capacity because of their deep-water location.

Although development in river transport needs more effort and financial resources, the great potential already available to this form of transport in Iraq, particularly in the alluvial plain, should be exploited, as all settlements

in this plain, including Baghdad, are located on the rivers. At least, the navigation on the Tigris river linking Basrah and Baghdad, the commercial centre of Iraq, should be improved in order to transport bulky goods. This, of course, would reduce the pressure on the railways and roads between the two centres, which are the most important routes in Iraq.

Finally, development in transport in Basrah Region should include the building of a new airport suitable for modern air traffic, located outside Basrah City, the key centre for all forms of transport in the Region. Only in these ways can Basrah City be expected to realise both its regional and national roles.

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CHAPTER SEVEN

SOCIAL SERVICES IN BASRAH REGION : AN EVALUATION OF
EDUCATION AND HEALTH

In the previous chapters some aspects of population, settlement, economic structure, and transport, were discussed. It is necessary to discuss the social services in Basrah Region at this stage of the present study, because of their essential importance for community life. However, the social services cover an extensive field, including different kinds of services, and the data are not available for all of these. Consequently, and because education and health are the most important social services for which data are available, this chapter deals only with these two services. The first part of the chapter studies the education services in Basrah Region, including all levels of education from kindergartens to higher education, as well as vocational and adult education. The number of students, teachers and buildings are used as indices for the evaluation of educational development in the Region. The second part deals with the health services, including all levels of these services in the Region. The registered cases of endemic and infectious diseases, number of health personnel and establishments are used as indices to evaluate the development of the health services in the Region.

EDUCATION

It is true that educational institutions and services have increased since 1958. But the most important increase took place in the ten years after 1968. As noted in Table 7.1, illiteracy* had decreased slowly during the period of 1947 - 1965. According to the population censuses in Iraq, in 1947 73.2% of the total population in Basrah Region were illiterate, and this declined to 63.5% and 52.9% in 1957 and 1965 respectively. It then decreased dramatically to 29.3% in 1977.

However, recently this phenomenon has been under control, because the state has enforced compulsory education for all children of primary school age, and for adults, both male and female.

Some aspects of the educational status of population in Basrah Region during the period 1957-1977 are shown in Table 7.2. As noted in this table, the proportion of people who could read only, and who could read and write had decreased during the period 1965-1977, since many of them had got a certificate or progressed to a higher level of education, as the standard of education services and the number of educational establishments have greatly increased since the beginning of the 1970's. This is shown in Table 7 2, and will be further demonstrated later. These should also be taken into consideration in conjunction with the population growth in the Region during the period 1947-1977, as mentioned previously in Chapter Two, when the total population had increased substantially.

* In Iraq, according to the Illiteracy Eradication Law, illiterates are of 15-45 age group who must be educated, while people over 45 are not involved by this Law.

TABLE 7.1 ILLITERACY STATUS OF POPULATION IN BASRAH
REGION 1947 - 1977

Year	Percentage of the total population		
	Male	Female	Total
1947	32.9	40.3	73.2
1957	26.9	36.6	63.5
1965	21.0	31.9	52.9
1977	9.6	19.7	29.3

Source : Calculated from the Population Census of Iraq, 1947, 1957, 1965 and 1977.

The proportions of people who gained certificates at different levels of education in 1977 were higher than those in 1957 and 1965. In addition, in 1977 the number was double that of 1965. All these facts can be considered as indices of the development of educational status of the population in the Region until 1977.

Prior to the 1970's, educational institutions and services were backward and unevenly distributed both in the Region and Iraq as a whole. Most schools were concentrated in urban areas, whereas they were few in numbers and inadequate in condition and equipment in rural areas, where a large number of villages had no school. This problem was more acute in marshy and remote areas. Moreover, the low standard of living, particularly in rural areas was a great hindrance to sending boys and particularly girls to

TABLE 7.2 EDUCATIONAL STATUS OF POPULATION IN BASRAH REGION*
1957 - 1977

Educational Status	Year					
	1957		1965		1977	
	Number	% of total population	Number	% of total population	Number	% of total population
Reading only	3,437	0.7	5,304	0.8	2,782	0.3
Reading & writing	71,034	14.1	116,543	17.4	103,135	10.2
Elementary Certificate	5,596	1.1	32,972	4.9	75,173	7.5
Intermediate Certificate			9,813	1.5	19,803	1.9
Secondary Certificate	4,302	0.9	5,692	0.9	11,806	1.2
University & College Certificate	1,079	0.2	1,970	0.3	6,639	0.7
Higher than Bachelor or Diploma	90	0.02	336	0.05	472	0.05
Ph.D. Degree	9		57		172	0.02

Source : Calculated from the Population Censuses of Iraq, 1957, 1965 and 1977.

* This table includes the educational status of population in Basrah Region, except for illiteracy

school, for although free education has been provided by the State since the 1920's, other expenses such as clothing was a problem facing the poor people. In addition, boys and girls represented a significant part of the family labour force, particularly in rural areas so that many parents preferred to keep their children out of schools. (1)

Since the early 1970's the educational services have developed substantially in the whole of Iraq, because of the great increase in oil revenues, and increased state attention to this sector.

At present, since the state has introduced systems of free education, compulsory education for children of primary school age and compulsory adult education, schools, particularly primary schools, are distributed throughout the Region and Iraq as a whole, both in rural and urban areas. Schools are also found in marshy and remote areas, without exception. In addition, all educational institutions and services are run by the state. In Basrah Region, now, all levels of education are found, from kindergartens up to higher education, and these stages of education in the Region will now be discussed in some detail.

Kindergartens

Education at this stage lasts two academic years after which children can attend primary school. Kindergartens are usually open to children who are not less than four years of age.

Unlike the other educational stages, kindergartens fall far short of local needs in Basrah Region and in the

whole of Iraq. In addition, their number has grown very slowly. As noted in Table 7.3, in the academic year 1970/1971 the number of kindergartens in the Region was only 12 with 1,240 children and 46 teachers, and in Iraq as a whole it was only 124, with 13,462 children and 762 teachers.⁽²⁾ Until 1973/1974, all kindergartens were concentrated only in Basrah City, while the rest of the Region had none. Although their number had doubled by 1979/1980, they were all concentrated in a few urban areas, particularly Qadha centres, and 12 of the total of 27 were found in Basrah City. According to the 1977 census, the number of children of kindergarten age (4-5 years) in the Region was 69,591, 34,235 females and 35,356 males, whereas the number of children of this age who were in kindergartens in 1976/1977 was only 2,887. This means that about 95.8 per cent of kindergarten age children were not in kindergartens in that year. In other words, the rate of children who were in kindergartens was 42 children per 1,000 children of 4-5 years of age. In fact, this very low rate forms one of the major problems facing the educational services sector in Basrah Region, and in the whole of Iraq which had only 333 kindergartens in 1978/1979.

To solve this problem, a plan has been drawn up by the Directorate General of Education in Basrah Region, which aims to increase the rate of children enrolled in the kindergartens from 42 per 1000 to 150 per 1000 by 1984/1985. The number of children in kindergartens in 1984/1985 is expected to exceed 23,000, dissected almost equally between the sexes, constituting about 27% of the total number of

TABLE 7.3 KINDERGARTENS IN BASRAH REGION, 1970-1980

Academic Year	Number of Kindergartens	Number of Children	Number of Teachers
1970/1971	12	1,240	46
1971/1972	13	1,346	52
1972/1973	13	1,274	51
1973/1974	14	1,453	69
1974/1975	16	2,273	83
1975/1976	16	2,219	90
1976/1977	20	2,887	126
1977/1978	22	3,030	143
1978/1979	25	4,028	152
1979/1980	27	4,775	197

Source : Directorate General of Education in Basrah Province, Educational Statistic. Annual Report of Statistics for Academic Year of 1979/1980, July, 1980, Table 8.

kindergarten age children of each sex. Based on the rate of 150 per 1000, the number of kindergartens in 1984/85 will be 150, with an average of six classes per kindergarten, 153 children per kindergarten, and 25 children per class. The number of teachers will be 758, an average of one teacher per 30 children.⁽³⁾ This educational plan related to kindergartens has been based on the resources available at present and those expected until 1984/1985. It is likely that these resources will have increased more than is at present expected. Although, it should be said that if all materials requirements for kindergartens were to be made available because of the state's wealth, it would not be easy to provide staff for them in the near future. Therefore, it is expected that a high proportion of children of 4-5 years of age, particularly in rural areas, will continue not to attend kindergartens for many areas.

Primary Education

Primary education lasts six academic years for children of 6-11 years of age. This education had suffered from several problems until recently. In addition to the uneven distribution of primary schools throughout the Region, which has already been mentioned, many of those in rural areas could hardly be called schools, being reed-built, poorly equipped and badly furnished. A severe shortage of school buildings was a major problem, often the same building being used by two and sometimes three schools, particularly in urban areas such as Basrah City. The teachers in primary schools in rural areas, particularly the remote parts, suffered from difficult conditions such as inadequate communications and

accommodation. In fact, primary education in Iraq was very backward in spite of its essential importance in the educational structure.

In the academic year 1956/1957, there were 36,153 pupils in primary schools in Basrah Region, constituting about 50% of primary school age children (6-11 years), according to the 1957 census.⁽⁴⁾ In 1967/1968 the number increased to some 94,000, constituting about 83% of children of primary school age according to the 1965 census.⁽⁵⁾ It has increased substantially since the early 1970's (see Table 7.4). The proportion of pupils attending schools in 1976/1977 rose to about 98% of the children of 6-11 years of age according to the 1977 census, and rose to 100% in 1979/1980, because compulsory education for children of primary school age was enforced by the state in the last academic year.

The number of primary schools increased from only 145 in 1956/1957, to 358 in 1967/1968, and 556 in 1979/1980. This gives averages of 249, 264, and 400 pupils per school, or 41.5, 41, and 66.6 pupils per class respectively. The ever-poorer pupil class ratios mean that although the number of schools in the Region has doubled, a remarkable shortage of school buildings still exists. Based on the average of 36 pupils per class, 9.5 class rooms and 342 pupils per school advocated by the educational plan mentioned previously, Basrah Region needs some 6,200 class rooms in 650 schools to cover the number of pupils in primary schools in 1979/1980 as shown in Table 7.4. The actual number of schools in that year was 556, a shortage of

TABLE 7.4 **PRIMARY EDUCATION IN BASRAH REGION, 1970-1980**

Academic Year	Number of Schools	Number of Pupils	Number of Teachers
1970/1971	357	101,875	4,112
1971/1972	408	110,943	4,260
1972/1973	373	119,171	4,359
1973/1974	399	128,325	4,676
1974/1975	401	144,634	4,670
1975/1976	448	158,648	5,519
1976/1977	481	174,186	5,616
1977/1978	428	184,840	6,290
1978/1979	506	213,521	6,751
1979/1980	556	222,428	7,054

Source : Directorate General of Education in Basrah Province, Educational Statistics, op.cit. Table 46.

94 schools. The number of primary school age children expected in 1984/1985 is about 271,000 and so the number of rooms and schools then will be some 7,500 and 800.

The number of primary school teachers has also increased steadily. In 1956/1957 their number was 773, rising to some 4,000 in 1968/1969, 6,750 in 1978/1979, and 7,000 in 1979/1980. The pupil teacher ratio was 46.7, 23.7, 31.6, and 31.5 respectively, compared with 28.2 as the national average in Iraq in 1978/1979. In 1975/76, comparable average ratios from other countries were Egypt 35, France 18, and United Kingdom 21 (1974).⁽⁶⁾ However, in Basrah Region it is comparatively high at present. Therefore, the educational plan has taken the rate of 25 pupils per teacher as a reasonable average to work towards. Accordingly, the number of primary school teachers in the Region should be some 11,000 in 1984/1985. On the basis of this rate, in 1979/1980 their number should have been some 8,900, but was 2,100 short of this.

Generally, although the conditions of primary education are now much better, certain problems are still facing this educational sector, such as some shortage of school buildings and teachers, as well as some schools being reed-built, particularly in marshy areas. It should be mentioned that a free school meals system for all people in these schools has started recently by the state.

Secondary Education

Secondary education in Iraq includes two sub-stages, the intermediate and the secondary. After primary school, pupils can attend intermediate school for three academic years, and

from there can attend secondary school for three years. In the secondary school a student has to make a personal choice of one of two courses, either the arts or the sciences, after passing the examination at the end of the first general year. In fact, not all those who leave primary schools go to intermediate schools since some of them go straight into employment. For the same reason not everyone goes from intermediate school to secondary schools, and some pupils attend vocational schools instead. Therefore, the total number of students in secondary education is usually smaller than that in primary education.

The number of students in secondary education (both intermediate and secondary) has increased steadily since the end of the 1950's. In 1956/1957 the total was only 3,780, or about 10% of the people of secondary school age (12-17 years), in 1964/1965 it had increased to 22,700 or 27.4%, in 1976/1977 to 51,500, or 38.7%, and in 1979/1980 to 87,800. (see Table 7.5). In 1984/1985 the total number of students expected at this stage in the region, will be about 117,000, 67.3% of secondary school age, with 93,700 in intermediate schools and 23,300 in secondary schools.

There were only 15 secondary schools in 1956/57 concentrated in the cities and mainly in Basrah City. They increased to 73 in 1967/1968, 126 in 1978/1979, and 144 in 1979/1980. The ratio of students to school was some 252,000, 570 and 600 respectively, compared with the national average of 500 in 1978/1979. The figures indicate that an important problem facing secondary education in the Region is the lack of school buildings. Based on an average of

TABLE 7.5 SECONDARY EDUCATION IN BASRAH REGION, 1970-1980

Academic Year	Number of Schools	Number of Students	Number of Teachers
1970/1971	68	25,246	1,033
1971/1972	71	25,622	1,091
1972/1973	74	27,601	1,147
1973/1974	79	30,903	1,234
1974/1975	102	42,290	1,421
1975/1976	114	47,617	1,646
1976/1977	125	51,549	1,758
1977/1978	116	62,940	1,843
1978/1979	126	71,246	2,174
1979/1980	144	87,774	2,294

Source : Directorate General of Education in Basrah Province, Educational Statistic, op.cit., Table 110.

34 students per class and 12 classes per school, as stipulated by the educational plan, in 1984/1985 the following will be required : about 3,400 classrooms and 290 schools, with 400 students per school, divided into 230 schools and 2,700 classrooms for intermediate schools and 60 schools and 700 classrooms for secondary schools. On the basis of the same rate, there should have been 215 secondary schools in 1979/1980 rather than 144.

The number of teachers in secondary education increased from only 161 in 1956/1957 to 782 in 1967/1968, 2,174 in 1978/1979 and 2,294 in 1979/1980. The student/teacher ratio was 24, 33, 32.8, and 38 respectively, compared with 31 as the national average in 1978/1979. In 1975/1976 the international average was 17.6, in Egypt 32.8, France 15, and the United Kingdom 16.1 (1974). In Basrah Region the rate is comparatively high, showing a shortage of secondary teachers. To solve this problem, the plan aims to decrease the student/teacher ratio to 23 in a few years. On the basis of this rate, the total of teachers in 1984/1985 in the Region should be about 5,000, and in 1979/1980 it should have been some 3,800 showing a shortage of approximately 1,500.

It is clear that an important growth of secondary education has taken place in Basrah Region recently. The number of schools, teachers and students has increased, and the school buildings and equipment such as furniture, libraries, laboratories, art, and sports equipment, have improved. Nevertheless, this stage of education is still

hampered by shortage of school buildings and teachers. In addition, intermediate and secondary schools are unevenly distributed and strongly concentrated in urban areas particularly in Basrah City. It should be noted that in 1978/1979 about 90% of secondary schools were in urban areas and only 10% in rural areas. Moreover, 52% of the total were concentrated in Basrah City in that year.⁽⁷⁾

Vocational Education

At present, vocational education in Basrah Region includes commercial, technical and agricultural education, as well as teacher training. Graduates of intermediate schools can attend three year courses in schools of commerce, technology, agriculture, or teacher training. Graduates of secondary schools can attend two year courses in teacher training institutes.

In Basrah Region, vocational education is very important at present for various reasons. Firstly, there is the shortage of teachers in kindergartens, primary and secondary schools. Secondly, to solve the problem of the inadequate agricultural labour force, and to develop agricultural techniques from traditional to modern, it is necessary to train a large number of people in agricultural institutes and schools. Thirdly, technical education is also very important to prepare a labour force to supply the increasingly sophisticated demands of modern industry in Basrah Region which has become the most important industrial region in the whole of Iraq.

In Basrah Region, remarkable changes in the field of vocational education have taken place since the 1950's. In

addition to the variation in the number of students, schools, and teachers, the structure of this sector of education has also changed. In the 1950's there were four vocational schools, one of them a technical school, another a home arts school, and two teacher training schools. In the academic year 1958/1959 the number of students in these schools was 300, 308, and 556 respectively, besides 237 students in a special school for preparing teachers for just three months. (8)

In 1968/1969, vocational education in the Region included three schools, a commercial school with 159 students, a home arts school with 197, and a technical school with 325. In addition there were two institutes of teacher training with 607 students in that year. (9)

Table 7.6 shows the general development of vocational education in Basrah Region during the period of 1970-1980. As noted in this table, the most important developments in this education have occurred since 1972/1973. While in 1971/1972 there were 4 vocational schools, 605 students, and 73 teachers in the whole of the Region; in 1972/1973 this increased to 6, 2,650, and 117, and in 1979/80 to 11, 4,750, and 283 respectively.

However, Table 7.7 gives a more detailed picture of vocational education in the academic year 1979/1980 in Basrah Region.

As shown in this table, there are five commercial schools out of the total number of vocational schools, with 23.7 and 21.5% of the total students and teachers. This means that on average there are 225 students per school,

TABLE 7.6 VOCATIONAL EDUCATION IN BASRAH REGION, 1970-1980

Academic Year	Number of Schools	Number of Students	Number of Teachers
1970/1971	4	673	71
1971/1972	4	605	73
1972/1973	6	2,647	117
1973/1974	6	3,254	121
1974/1975	6	3,786	151
1975/1976	5	3,636	150
1976/1977	8	3,734	182
1977/1978	8	4,013	203
1978/1979	10	4,314	252
1979/1980	11	4,747	283

Source : Directorate General of Education In Basrah Province, Educational Statistic, op.cit. Table 120.

TABLE 7.7 : VOCATIONAL EDUCATION STATUS IN BASRAH REGION IN THE ACADEMIC YEAR 1979/80

Type of Vocational Education	Number of Schools		Number of Students		Number of Teachers		Number of Rooms	
	Male	Female Mixed	Male	Female Total	Male	Female	Total Male	Female Mixed
Commercial	2	3	249	876	23	38	61	30
Technical	-	3	1,772	2,049	115	25	140	34
Agricultural	-	1	355	394	29	5	34	1
Teachers Training schools	-	1	-	770	1	22	23	20
Teachers Training institutes	-	1	209	409	21	4	25	12
Total	2	5	2,585	2,162	189	94	283	61
				4,747			51	47

Source : Directorate General of Education In Basrah Province, op.cit., Table 111.

and 18.4 students per teacher, compared with 319 and 20.4 as a national average in Iraq in 1978/1979. It should be noted that all these schools are found only in Basrah City itself. Moreover, there are no buildings for these schools, but they share the premises of schools, whether primary or secondary. In 1980 two buildings were planned for the Region, one of them in Basrah City, the other in Zubair City.

In 1979/1980 there were three technical schools, with 43.2% of all the vocational students, and 49.5% of teachers. The average rate is 14.6 students per teacher, 28 per room, and 683 per school. In 1978/1979 the national rate was 15.7 students per teacher and 619 per school. There are only two buildings for these schools, both in Basrah City. But in 1980 many technical schools were under construction such as those in the cities of Qurna, Abu Al-Khasib and Al-Zubair. Other schools are due to be built in the next stage such as those in Fao City and Basrah City.

As shown in Table 7.7, in 1979/80 there was only one school of agriculture in the whole of Basrah Region, located east of Qurna City, with 8.3% of vocational students, and 12% of teachers. The rate was 12 students per teacher, but it was 30 per class. In Iraq as a whole it was 9 students per teacher and 316 per school. This school was opened in 1977/1978, with a catchment area covering the whole of Basrah Region. In addition, in 1980 there was another school under construction in Sidra City.

In 1979/1980, there were one school and one institute of teacher training in the Region, both in Basrah City, between them accounting for 25% of this type of students and

17% of their teachers. The rate is 24.5 students per teacher, and it is 37 per class. The national rate was 445 per school and 40 per teacher in 1977/1978.

It is clear that in Basrah Region the extent of vocational education is still limited compared with its increasing importance in this industrial region. The number of students at vocational schools, except for those at the teacher training institute*, constituted only 4.7% of all students at secondary school in the Region in 1979/1980, compared with the national average of 7.5% in 1978/1979. These figures emphasize how limited this type of education is in Basrah Region and Iraq as a whole. Therefore, the state has decided that about 50% of the graduates of intermediate schools in Iraq including Basrah Region will have to attend the vocational schools. Moreover, until 1980 vocational education had suffered from various problems such as shortage of buildings and uneven distribution of schools as, except for the agricultural school, they were all concentrated in Basrah City.

Higher Education

Higher education in Basrah Region consists solely of the University of Basrah, which is the third most important of the seven universities in the whole of Iraq. It was opened in 1964 with three faculties : education, law and engineering, and 630 students ⁽¹⁰⁾ The number of students increased to some 1,000 in 1967/1968, divided between five faculties: medicine, engineering, science, arts, and law and

* This institute is attended by the graduates of secondary schools.

economics.⁽¹¹⁾ Some changes in the structure of the university have taken place since, particularly in the number of faculties, as shown in Table 7.9, but the number of students increased rapidly, as shown in Table 7.8. This Table shows that their number increased from 3,167 in 1968/1969 to 10,278 in 1978/1979, when they constituted 11.2% of all university students in Iraq. This proportion is usually determined by the Ministry of Higher Education according to the general educational policy in Iraq. Students are admitted by the ministry to a certain university according to the ministerial examination grades at the end of the last year of secondary education. The student's personal wishes are of secondary importance. Thus, students in Basrah University are from all regions of Iraq. However, students from Basrah Region constitute a high proportion of the students in this university. In 1974/1975, for instance, they formed 48% of all students admitted.⁽¹²⁾

As shown in Table 7.8, the number of female students has increased substantially. Thus, their proportion increased from 18.5% of all students in 1968/1969 to 30% in 1978/1979. This phenomenon has recently become common, not only in higher education, but in all stages of education in Iraq as a whole. At present, most females graduating from secondary school want to attend university. However, the number who can actually attend university is determined by various reasons, such as examination grades and family approval.

The Ministry of Higher Education, already mentioned,

TABLE 7.8 NUMBER OF STUDENTS IN BASRAH UNIVERSITY, IN
SELECTED ACADEMIC YEARS, PERIOD OF 1968/69 -
1978/79

Academic Year	Number of Students			% of total In Iraq
	Females	Males	Total	
1968/1969	587	2,580	3,167	9.2
1970/1971	655	2,545	3,200	7.4
1972/1973	982	3,074	4,056	8.3
1973/1974	1,380	3,950	5,330	9.1
1974/1975	2,124	5,711	7,835	11.2
1976/1977	2,807	6,314	9,121	11.2
1977/1978	2,899	6,501	9,400	11.0
1978/1979	3,036	7,242	10,278	11.2

Source : Annual Statistical Abstracts, Iraq, of 1970, 1971, 1973, 1974, 1975, 1976, 1977, and 1978.

determines the proportion of students not only for each university, but also for each faculty and department, according to centralised planning for the whole country. Consequently, the students admitted to Basrah University in 1978/1979, were distributed by faculty and nationality, as shown in Table 7.9. Usually the level of examination grades is the main criterion used to decide distribution : the faculties of engineering and medicine require the highest marks, and education the lowest. As noted in this Table, the largest number of students is in the education faculty, partly for this reason, and also because of the education policy to prepare a large number of teachers for secondary education. All education graduates have to work in the secondary schools, and therefore the shortage of teachers in secondary education should be solved in the next few years.

Table 7.9 shows also that the non-Iraqi Arab students totalled 633, about 6.2% of the students in the university. They are from different Arab Countries, and attend universities in Iraq free of fees being given grants by the Iraqi Government to cover education fees, accommodation and basic living expenses.

The number of teaching staff has also increased continuously. As shown in Table 7.10, it rose from 189 in 1970/1971 to 486 in 1978/1979, when there were 21 students per teacher. This rate is high compared with the national average of 18, international average of 14.4, and Algerian average of 10. Moreover, about 69% of the total teaching staff are Iraqis, while the remaining 31 per cent are from abroad. This means

TABLE 7.9 NUMBER OF STUDENTS IN BASRAH UNIVERSITY BY FACULTY, NATIONALITY, AND SEX IN 1978/1979

Faculty	Iraqis		Foreigners						Total	
			Arabs			Non-Arabs				
			Male	Female	Male	Female	Male	Female		
Arts	224	148	47	27	1	-	272	175	447	
Science	570	416	40	24	1	1	611	441	1052	
Engineering	1357	305	99	13	5	1	1461	319	1780	
Medicine	547	257	68	17	13	2	628	276	904	
Agriculture	631	188	75	6	2	-	708	194	902	
Administration & Economics	1700	714	113	34	5	-	1818	748	2566	
Education	1699	857	45	25	-	1	1744	883	2627	
Total	6728	2885	487	146	27	5	7242	3036	10278	
% of Iraq *	11.3	10.8	12.1	12.8	7.6	6.0	11.3	11.0	11.2	

Source: University of Basrah, Annual Report, 1978/1979, Table 22, p.78.

* Ministry of Planning, Annual Abstract of Statistics, 1978, p.256.

TABLE 7.10 TEACHING STAFF IN BASRAH UNIVERSITY IN SELECTED YEARS, PERIOD OF 1970-1979

Academic Year	Foreigners										% of total in Iraq				
	Iraqis					Arabs						Non-Arabs		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female		Male	Female	Male	Female
1970/1971	145	4	9	-	30	1	184	5	189					8.3	
1972/1973	146	7	19	1	26	2	191	10	201					8.5	
1973/1974	168	9	15	1	27	1	210	11	221					8.3	
1974/1975	171	14	40	1	81	4	292	19	311					10.3	
1976/1977	232	17	71	2	87	-	390	19	409					10.2	
1977/1978	269	32	71	2	61	2	401	36	437					9.7	
1978/1979	300	37	58	2	86	3	444	42	486					9.3	

Source : Annual Abstract of Statistics, Iraq, of 1971, 1973, 1974, 1975, 1976, 1977, and 1978.

that Basrah University has a remarkable shortage of Iraqi staff. Although all Iraqi universities suffer from this problem (the average is 80% national staff), a high proportion of Iraqi staff do not like working in Basrah University because of the uncomfortable climate in this area particularly in summer, and the shortage of adequate accommodation in Basrah City, unlike in Baghdad City. However, in the light of the large number of Iraqi post-graduate students, studying both in Iraq and abroad at present, it can be said that this problem facing Iraqi universities should be solved in the next few years.*

Basrah University suffers from some other problems, particularly an overall shortage of buildings, and the inadequacy of several of the existing buildings. In addition, there is a remarkable shortage of technicians in the University.⁽¹³⁾ The University buildings are found both in Basrah City and in Shatt Al-Arab City (Al-Tanoma), these two cities being close to each other separated by the Shatt Al-Arab river. The new site for Basrah University is in Karmatt Ali district at the northern extreme of Basrah City. The buildings of the University in this site are now under construction, and will be mentioned in detail in Chapter Eight.

Adult Education

Various earlier attempts from the 1950's up to 1978 to solve the problem of illiteracy in Iraq met with little success, but in 1978 the state started the most ambitious campaign

* For example, in 1978/1979, 137 scholarships were granted by Basrah University itself for postgraduates studying in Iraq or abroad.

yet to solve this problem, involving a system of compulsory adult education for illiterates of 15-45 years of age.* Accordingly, in Basrah Region the total number of illiterates was some 154,500 (females 111,800 and males 42,700), in that year. There were 423 centres of illiteracy eradication with 76,400 students, consisting of 150 centres for 28,900 males and 273 centres for 47,500 females. In 1979, there were 463 centres with 1,340 teachers for 34,000 males, and 1,106 centres with 2,480 teachers for 108,000 females. In June 1980 the number of centres decreased to only 608 with 1,310 teachers and 40,000 students (females and males), since students who complete the 12 month literacy courses, then have to attend schools called "popular schools". The education in these schools lasts 16 months. The graduates from popular schools are at the same level of education as those from primary schools. In June 1980 there were 346 schools with 825 teachers for 25,000 males, and 416 schools with 2,030 teachers for 65,500 females. (14)

The illiteracy eradication centres and popular schools are found in the buildings of primary and secondary schools. so, the teachers in primary and secondary education are also teaching students in illiteracy eradication centres and popular schools for extra wages. These centres and schools are found in all cities and villages throughout the Region, including even the nomads in the Zubair area. It should be said that this campaign for illiteracy eradication is certainly proving successful. It has covered all the people stipulated by the law, since no one can avoid attendance at these centres and schools without a legal excuse.

* On 22nd May 1978 the Iraq Government issued a special law called the Law of the Comprehensive National Campaign for Compulsory Illiteracy Eradication

Health Services

In a region such as Basrah Region, great efforts must be made to improve sanitary conditions, including the development of health services to a level at which all endemic and infectious diseases can be completely controlled. This Region suffers from several environmental and social problems which contribute significantly to the widespread occurrence of these diseases throughout the Region. There are vast areas of marshlands, most of the river levees are covered with flood water in spring and summer. the southern part of the Region is affected by tides, high temperatures and high humidity particularly in summer, duststorms, and frequent warm and wet south-easterly winds from the Arab Gulf. In addition, the Region is located at the lower part of the valley of the Tigris - Euphrates rivers which run through Iraq and large parts of Syria and Turkey, so that there is a great likelihood of water pollution. Such conditions have made Basrah Region a favourable habitat for many diseases and insects. Moreover, until recently, the majority of people particularly in rural areas suffered from many socio-economic problems such as very low income, poor diet, inadequate clothing and housing, poor public services especially health services, as well as a low cultural level. All these problems have contributed to the spread of many diseases in the Region, as shown in Table 7.11 This Table shows only the cases of endemic and infectious diseases registered at health establishments. Many other cases would not be reported for various reasons such as inadequate communication, particularly for people living in marshy and

TABLE 7.11 REGISTERED CASES OF ENDEMIC AND INFECTIOUS DISEASES IN BASRAH REGION, PERIOD OF 1950-1978

Disease	Y E A R				
	1950	1957	1967	1974	1978*
Small pox	-	25	-	-	-
Acute Poliomyelitis	1	-	10	37	34
Phthisis	497	1,672	1,030	1,177	599
Dysentery	855	2,954	11,541	430	632
Syphilis	645	24	1,204	39	12
Gonorrhoea	469	224	323	675	375
Erysipelas	18	10	2	-	-
Cerebro Spinal Fever	18	18	113	61	83
Leprosy	31	52	25	1	4
Typhoid Fever	65	119	78	273	374
Para Typhoid Fever	10	31	1	-	2
Puerperal Fever	7	3	19	39	50
Tetanus	36	52	140	175	256
Chicken pox	39	110	3,087	1,724	1,711
Diphtheria	65	76	49	93	124
Measles	70	323	5,473	11,348	6,286
Whooping Cough	133	867	538	1,827	1,463
Mumps	1,213	1,222	3,608	2,030	4,255
Acute Ophthalmia	1,060	2,604	-	2,396	9,436
Malaria	31,573	10,408	228	29	62
Trachoma	25,562	10,003	-	27,065	46,413
Bilharzia	4,153	4,734	693	-	-
Influenza	-	-	-	2,910	14,322

Source : Annual Abstract of Statistics, Iraq, 1950, 1957, 1967, and 1974.

* Ministry of Health, Directorate General of Preventive Medicine - Statistics Section, No. of Reported Cases and Registered Deaths of Communicable Diseases for Year 1978.

remote areas, where it is difficult for patients to reach medical establishments which are concentrated mainly in cities. Also, because of social considerations, some people, particularly women, keep the disease secret and some cases are treated by traditional medicine. However, these cases have greatly decreased in recent years, as significant social developments have taken place since the early 1970's. These have contributed to the discovery of many cases of diseases by government health establishments. Also people have been encouraged to contact medical establishments for treatment, even if they live in marshy and remote areas, as many dispensaries and health centres have been built in these areas. Therefore, it can be said that the figures of 1978 are the most accurate, and with those of 1974, present a much more precise picture than those of the previous year. Table 7.11 shows that the cases of some diseases, which were widespread in the Region, decreased greatly in these two years, for example phthisis, malaria, dysentery, and bilharzia. There are no cases of smallpox and cholera at present, because of the great preventive campaigns carried out throughout the country. Nevertheless, the figures of 1978 show that the number of cases of some infectious diseases was still high, particularly those which affect children, such as chicken pox, measles, whooping cough, mumps, and acute ophthalmia. This means that sanitary conditions especially in rural areas must be further improved, and health services offered by the state should be designed to provide comprehensive medical care for the whole population through the integration of curative and preventive services. In fact, the Iraqi state attempts to achieve all these goals in so far as it has resources

available. The results of these efforts will now be shown through discussion of the developments of health services in the Region and in Iraq as a whole. The next section of this chapter will deal with the health establishments and health personnel.

Health Establishments

At present, in Basrah Region there are various kinds of health establishments to provide people with different medical services. However, although there is a variety of these establishments, they can be classified into four categories : hospitals, dispensaries, clinics and others.

Hospitals

Except for one private hospital, with 12 beds, the remaining hospitals are state owned hospitals run by the Ministry of Health and some other ministries. Some of them specializes in certain diseases but most cater for general needs.

In 1950, as shown in Table 7.12, there were eight hospitals in Basrah Region, 9.7% of the total for Iraq, increasing to 18 or 9% in 1979. As noted in this Table, the number of population per hospital in Basrah Region remained lower than that in the whole of Iraq during the period 1950/1980. But, in both the rates are very high compared with those in the developed countries, for example, in 1976, France (14,823), West Germany (17,769), and Czechoslovakia (35,822).⁽¹⁵⁾ Moreover, the hospitals in Basrah Region are not evenly distributed. In 1979, of 18 hospitals in the Region 7 were in Basrah City itself, and

TABLE 7.12 HOSPITALS, BEDS, AND OTHER HEALTH ESTABLISHMENTS IN BASRAH REGION, PERIOD OF 1950-1979

Year	Hospitals						Other Health Establishments**		
	No. of Hospitals	Population per Hospital		No. of beds	Pop. per Bed		No. of Estab.	Pop. per Estab.	
		Basrah R.	Iraq		Basrah R.	Iraq		Basrah R.	Iraq
1950	8	50,669	63,621	534	759	1,064	17	23,844	13,550
1958	11	47,405	54,803	719	725	730	22	23,702	13,536
1967	15	47,811	58,931	1,462	491	554	65	11,033	9,924
1975	18	52,165	67,320	2,113	447	509	150	6,296	6,077
1979*	18	60,026	64,800	2,293	471	518	167	6,469	5,562

Source : a. Annual Abstracts of Statistics, Iraq, 1950, 1958, 1967, and 1975.

b. Censuses of Iraq, 1947, 1957, 1965, and 1977.

* Ministry of Planning, Central Statistical Organization, Health Services

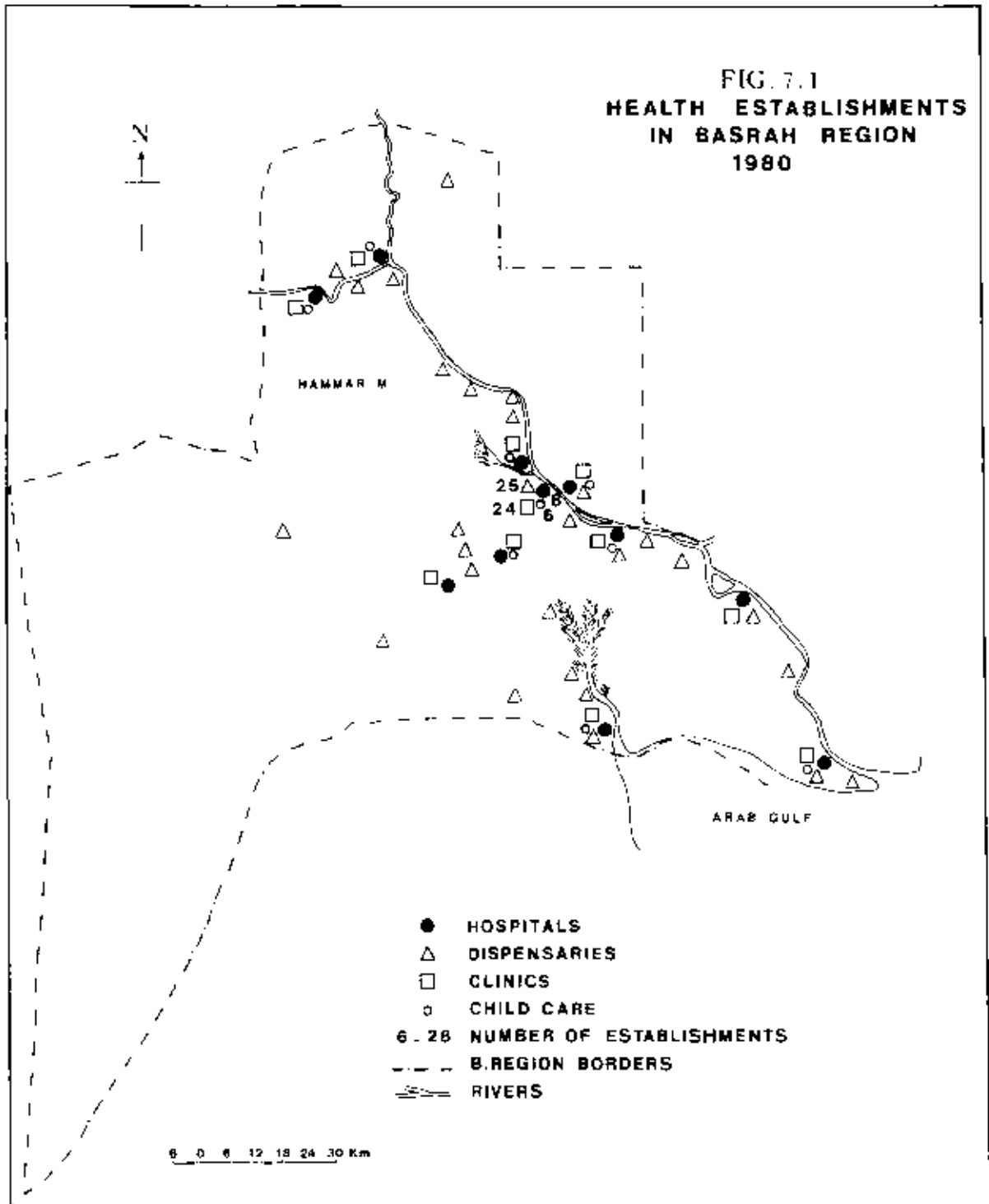
For Year 1979, Baghdad, 1980, p.20.

** In the period 1950-1967 the number only refers to dispensaries, because the data concerning others is unavailable.

the remaining 11 hospitals were also in cities; there are no hospitals in the other cities nor in any of the rural areas (see Fig. 7.1). This uneven distribution of hospitals has been a common phenomenon in Iraq until the present time. In addition, the problem is more serious as all hospitals found outside Basrah City are small and under the supervision of unspecialized physicians (general medicine), or practitioners, except for the chest hospital in Zubair which had 360 beds and two specialized physicians. In Basrah City hospitals include departments for different diseases, with physicians specializing in different medical branches. In other word, all specialized physicians in the Region are found in Basrah City. Consequently, all the hospitals in Basrah City should offer their services not only to people living in the city itself, but also to the whole population of the Region, as well as to that of adjacent regions such as Missan and Thiqrar Regions, because these services are much better than those offered by hospitals in those regions. So there is great pressure on the hospitals in Basrah City, which has contributed to lowering of the standard of their services. The difficulties facing people who need these services but live far from Basrah City, particularly in the marshy and remote areas can be readily understood. This is most tragic in emergencies when those people need immediate medical treatment, as the hospitals and other medical establishments found in other cities and rural areas in the Region, can do nothing for the serious cases.

The number of beds is an important indication of the level of the potential service offered by hospitals. Table 7.12 shows that the total number of beds in the whole of

FIG. 7.1
HEALTH ESTABLISHMENTS
IN BASRAH REGION
1980



Basrah Region was still only 719 until 1958, 7.8% of the total number of beds in Iraq; it doubled in the 1960's, making 9.4% of all beds in Iraq and increased to 2,293, or 9.3% in 1979. Although the average ratio of the number of population per bed in Basrah Region was less than that in Iraq as a whole during the period 1950-1979, in both it was much higher than that in developed countries such as - for instance - France (97), West Germany (84), United Kingdom (117), and Czechoslovakia (99) in 1976. Furthermore, it should be noted that in 1979 about 66% of the total number of beds in Basrah Region were found in the hospitals of Basrah City, while the remaining 34% (767 beds) were in the rest of the Region. In addition, of these 767 beds, 360 were in the chest hospital in the Zubair. This means that only 407 beds, about 17% of the total number, are distributed among the other ten hospitals found in the Region outside Basrah City. This means that, for example, in 1979 there was one bed for every 2,000 persons in the Qurna Qadha compared with one bed for 366 persons in Basrah City.

It is clear, in the light of the above facts, that there is a remarkable shortage of both hospitals and beds in Basrah Region overall, and particularly in small cities and all the rural areas. According to the average ratio of selected developed countries,* of about 22,000 persons per hospital, and about 100 persons per bed, in 1979, Basrah Region should have had 49 hospitals and some 10,800 beds.

* These selected countries are : France, United Kingdom, Denmark, Czechoslovakia, Germany Dem., Germany Fed., Yugoslavia, Sweden, and Switzerland.

Source : United Nations, Statistical Year book 1978, pp.893-897.

Compared with the actual number (shown in Table 7.12), it was short of 31 hospitals and some 8,500 beds. By 1985 these figures should be increased to 60 hospitals and some 13,300 beds if the above anomalies are to be rectified.

Nevertheless, it must be said that the situation in hospitals throughout Basrah Region is now much better than in the past in terms of buildings, equipment, accessibility for the potential patients, and staff. The improvement and extension of hospital services are under the control of the State, and all these State owned hospitals offer free medical services to the whole population. As part of its efforts to improve facilities, the State has recently built a large modern teaching hospital in Basrah City attached to the medical faculty in Basrah University. This hospital has been richly equipped and staffed. It was opened in 1980, so the number of hospitals in Basrah Region totalled 19 in that year.*

Dispensaries

Dispensaries are the second most important health establishments in Basrah Region, whether in urban or rural areas. They are run by the State to offer medical services of a basic nature to the whole population. In the 1950's dispensaries were concentrated mainly in the cities, when they totalled 17 in 1950, increasing to 22 in 1958. As shown in Table 7.12, the ratio of population per dispensary

* The detailed data about the teaching hospital, particularly the number of beds and staff, is difficult to obtain, since the services in this hospital have been offered only to the military personnel injured in the war between Iraq and Iran which started in September 1980.

was very high, particularly compared with the national ratio. Although the number of dispensaries had greatly increased by 1967, when they totalled 65, they were unevenly distributed, and poorly equipped and staffed. At that time, in contrast to those dispensaries found in cities, it was rare to find one in a rural area under the supervision of a physician. They were usually directed by physicians' assistants or health officials, and some of them were directed by only one dresser. In addition, some dispensaries found in rural areas were made of reed or mud. People with the means of doing so therefore chose to obtain medical services from the health establishments in the cities, particularly Basrah city, thereby further emphasising the importance of the urban dispensaries.

Since the early 1970's dispensaries have greatly improved in their number, equipment, buildings and staff. In 1980 they totalled 103 in Basrah Region, giving one dispensary for every 10,800 persons.* This ratio is similar to that of 1967, showing that, although the number of dispensaries has doubled recently, it has done little more than keep up with the region's population growth rate. Nevertheless, the picture is different if the ratio is derived according to the distribution of dispensaries among rural and urban areas. It should be noted that in 1980, the number of dispensaries in rural areas totalled 62, 60% of the total number. There was, therefore, one dispensary for every 5,700 persons in rural areas, compared with one dispensary for 16,800 persons in

* The data concerned the number of dispensaries in Basrah Region and Iraq for the years 1975 and 1979, and in Iraq for 1980 are, unfortunately, not available. The data concerned the health establishments and personnel in Basrah Region have been obtained by several personal visits to the Directorate General of Health in Basrah Province.

urban areas. The remaining 41 dispensaries, 40% of the total, were found in the 15 urban centres of the Region, and 26 out of the 41 were concentrated in Basrah City itself (see Fig. 7.1). However, dispensaries are the only medical establishments in rural areas, while hospitals and other medical establishments are found as well as dispensaries in urban areas. (16)

Although the number of medical personnel has greatly increased in the dispensaries in recent years, this kind of medical establishment in rural areas is still suffering from a remarkable shortage of staff, particularly the physicians. Thus it was still the case that in 1980 only 13 out of the 62 dispensaries in rural areas were under the supervision of physicians, the remainder being directed by physicians' assistants or health officials many of them with only rudimentary training in health care.

Clinics

In Basrah Region, clinics are divided into two kinds; public and private. The first are owned and run by the state to offer freely their health services to the whole population. The private clinics are owned and run by individual doctors who charge for their services. Private clinics are now confined to Basrah City because of the application of the health security system for all people in Iraq, which aims to eliminate the private health establishments and replace them by state owned establishments. As a first stage, the system has been carried out only in Qadhas and Nahias; the next stage will be to apply it to the Muhafadha (Province)

centres.* In 1980, there were 35 clinics concentrated in only ten cities, and 23 out of this total were in Basrah City itself (see Fig. 7.1). Clinics are usually found in public hospitals to provide out-patients with medical services. Some clinics are also found in dispensaries to offer their services after the official duty hours of these dispensaries. These clinics are called "Popular Clinics" and "Evening Clinics". A few other independent clinics are found in particular buildings. All State owned clinics are well equipped and staffed. In 1980 there were 127 doctors working in these clinics, with 45 dentists and 11 pharmacists. Of these, 81 doctors, 28 dentists and 5 pharmacists some $\frac{2}{3}$ of the total worked in Basrah City. Of course, the best clinics are found in Basrah City, where the specialized doctors are found, and therefore, once again, the divergence of availability between Basrah and the rest of its region is confirmed.

Other Health Establishments

These health establishments include centres of maternity and child care, mobile dispensaries, and pharmacies. Recently the State has given increased attention to maternity and child care. Prior to the 1970's there was only one centre offering services for this purpose, inevitably in Basrah City, yet by 1980 there were 14 of these centres in Basrah Region, six being in Basrah City. Except for one maternity and child care centre located in separate buildings in Basrah City, the remaining 13 centres are found in hospitals or

* The data concerning the number of private clinics in Basrah City are unavailable. But it should be said that all specialized physicians in this city have owned private clinics, except for those who are members of staff in the medical faculty for a legal reason.

dispensaries, and directed by their staff. In fact, Basrah Region requires a large number of maternity and child care centres which should be evenly distributed in both rural and urban areas. This kind of health service is very essential in a community like that in Basrah Region which suffers from several socially related health problems.

Because many people live in the marshy and remote areas, where there are no health establishments, many mobile dispensaries have been established. In 1980 there were ten land mobile dispensaries, and seven river mobile dispensaries distributed among the sub-administrative units in the Region. However, in spite of the importance of these dispensaries, they suffer from a severe shortage of medical personnel. They are under the supervision of physicians' assistants or health officials, with a dresser or nurse in some of them. In addition, they are poorly equipped, for they are usually supplied with only very limited facilities and medicines.

Pharmacies in Basrah Region are of two kinds : State owned pharmacies, and privately owned pharmacies. The first kind are usually attached to the State health establishments to offer free pharmaceutical services to the whole population; a few are attached to the public clinics where they sell pharmaceutical materials at reduced prices. In all State health establishments already referred to, there are pharmacies. The standard of pharmaceutical facilities in each one depends upon the level of the health establishment to which it is attached.

Prior to the application of the health security law in 1971, private pharmacies were found mainly in Basrah City, with

a few in other cities in the Region. Since that date, all private pharmacies have been restricted to Basrah City. In 1980 there were 25 of these in the city. It is important to make clear that these private pharmacies sell medicines to all people throughout the Region who need them, if the State owned pharmacies, particularly those in small cities and rural areas, cannot supply them.

Health Personnel

It is apparent that the health services are numerous and varied and run by a large number of specialized people (see Table 7.13). However, although these people play such an essential part in the community, not only are their numbers still low compared with the demands of the total population in Basrah Region, but in addition, they are unevenly distributed throughout the Region.

Table 7.13 shows that the number of physicians was still below one hundred until after 1967 in the whole Region, most of them concentrated in Basrah City. In the early 1970's their number greatly increased, though the figure levelled off after 1975, to around 350 by the end of the decade. This figure represented 8% of the total number in Iraq. Thus, the ratio of population per physician had sharply declined compared with that of 1967. Nevertheless, in 1979 this ratio was higher than that of Iraq as a whole, and in both it is very high compared with that in the developed countries; for instance, France 678, United Kingdom 761 and East Germany 523. In 1980, although the number of physicians rose to 503, the ratio remained high, one physician for every 2,223 persons in the Region.* Furthermore, only 128 of the

* The data concerned health personnel in the whole of Iraq for 1980 are not available.

TABLE 7.13

HEALTH PERSONNEL IN BASRAH REGION AND IRAQ, 1950-1979

Year	Area	Physicians	Pop. per Physician	Dentists	Pharmacists	Physicians Assistants	Pharmacists Assistants	Health Officials	Laboratory Assistants	Radio-Graphers	Dressers	Nurses	Midwives	Health Inspectors	Others
1950	Basrah R.	75	5405	-	20	-	-	-	-	-	-	-	-	-	-
	Iraq	811	6433	-	201	-	-	-	-	-	-	-	-	-	-
1958	Basrah R.	72	7242	12	20	-	4	28	8	8	102	65	63	21	7
	Iraq	1192	5655	112	378	-	100	549	127	109	1082	772	694	82	163
1967	Basrah R.	94	7629	21	12	-	10	55	13	10	111	113	-	23	2
	Iraq	1282	6711	159	185	-	175	1032	231	207	1645	1169	81	198	182
1975	Basrah R.	369	2559	64	39	120	32	50	76	58	366	348	33	18	120
	Iraq	3861	2912	617	525	1147	918	853	947	767	3238	3281	279	180	1967
1979*	Basrah R.	347	3114	59	28	17	50	35	117	54	377	469	5	20	326
	Iraq	4258	3013	786	809	1210	675	725	1316	813	3523	4558	457	185	3889

Source: Annual Abstracts of Statistics, Iraq, 1950, 1958, 1967, and 1975.

* Ministry of Planning, Health Services for year 1979, op.cit., pp.22 and 34-36.

- The vacant places in this table indicate that the data are not available.

503 physicians are distributed among all the sub-administrative units of the Region, while the remainder are concentrated in Basrah City. This means that the ratio was one physician for 1,330 persons in this city, and one physician for 4,850 persons in the rest of the Region. Accordingly, if we take the ratio of 1,000 persons per physician as a reasonable ratio, in the light of the ratios in other countries, in 1980 there should be 1,120 doctors in Basrah Region, 500 in Basrah City and 620 in the rest of the Region. Moreover, all specialized doctors are concentrated in Basrah City; where in 1979, there were 72 specialists, 6% of the total in Iraq.*

The same comments can be made about dentists, as the Region suffers from a severe shortage of them. As shown in Table 7.13, in 1958 there were 12 dentists found only in Basrah City. During the 1960's some dental clinics were opened in hospitals in the Qadhas centres. Although their number rose to 59 in 1979, the ratio of total population to dentists was still high, 18,300 persons per dentist in Basrah Region compared with 16,300 in Iraq. In 1980, the ratio decreased to 14,500 when there were 77 dentists, 48 in Basrah City, 27 in the other cities and 2 in dispensaries attached to industrial establishments in rural areas.

The other groups of health personnel are also of great importance to the health services. Nevertheless, as shown in Table 7.13, their numbers are still very low compared with the total population in the Region. So, although the number of some groups has increased slightly, the number of others has decreased sharply, for example that of midwives, and

* The data concerning their number for 1980 are unavailable.

physicians' assistants. Even dressers and nurses, whose number has risen sharply since the early 1970's, fall far short of the requirements of the population.*

Conclusion

In Basrah Region as in Iraq as a whole, no significant development in the educational services took place before the 1970's. These services had in fact increased during the 1950's and 1960's in terms of the number of students, teachers, institutes, buildings and equipment, but such development was not enough to meet the increased needs of the population. In addition, these services were generally backward and unevenly distributed, being concentrated in urban areas. In the rural areas schools were few in number and inadequate in condition and equipment.

Since the early 1970's, as a result of the increased oil revenues and State attention, the educational sector has greatly developed. Some effective systems have been introduced to develop the educational services in Iraq, such as free education at all levels, compulsory education for children of primary school age, and compulsory illiteracy eradication. Consequently, the number of students, teachers, institutes and school, buildings and equipment has greatly increased. At present, schools, particularly primary schools, are distributed throughout Basrah Region and Iraq as a whole, in both urban and rural areas, and are also found in marshy and remote areas which were previously lacking in any kind of educational services.

However, considering the increasingly great oil revenues in Iraq, particularly in the second half of the

* The detailed data concerning health personnel in Basrah Region for 1980 are not available.

1970's, the level of development in the educational sector since that time should have been much higher. Until 1980, all levels of education were still suffering from some problems, such as a shortage of school buildings and teachers; for example there were some reed-built schools in the rural areas, particularly in marshy areas in Basrah Region. In addition, except for primary schools, all other levels of education are still unevenly distributed, and strongly concentrated in urban areas, particularly in Basrah City. These educational services, such as university and vocational education, are concentrated in this city, not simply because of its size, but due to central government policy. University and vocational institutes could be placed in other locations in the Region, such as Qurna City or Abu Al-Khasib City, or in the rural areas, particularly along the Tigris and Shatt Al-Arab rivers. Such locations would provide a better physical and social environment than Basrah City, which has grown so rapidly that it suffers from high pressure on different sectors including social services, transport, accommodation and trade. In addition, placing such educational establishments outside Basrah City would lead to a valuable and necessary development of socio-economic issues and land use in these locations, in both rural and urban areas.

Similarly, although health services are essential and recognized as such, they still fall far short of the population needs in Basrah Region as in Iraq as a whole. Until recently, these services were backward in terms of health establishments, personnel and equipment. In addition, health services were strongly concentrated in urban areas, particularly in Basrah

City, while most of the rural areas were lacking in these services. Basrah Region, on the other hand, suffers from several physical problems which make it a favourable habitat for many diseases. Also, many socio-economic problems facing the majority of people, particularly in rural areas, contributed significantly to the widespread occurrence of these diseases in the Region. Areas like this, of course, need great efforts to improve sanitary conditions to a level at which all endemic and infectious diseases can be completely controlled and ultimately eradicated.

However, in Basrah Region as in Iraq as a whole, health services have been significantly developed by the state since the early 1970's, and thus, sanitary conditions have improved, and the incidence of some diseases, which were widespread in the Region, have greatly decreased. This decrease is clearly related both to a general improvement in living standards, and also to the specific increase in the number of health establishments and personnel. Although the number and distribution is still not adequate, facilities are now more widely scattered and also equipment in these establishments has recently been improved. Nevertheless, health services in Basrah Region still suffer from a remarkable shortage of health establishments at all levels, particularly hospitals, which are only found in certain cities and strongly concentrated in Basrah City. In addition, all hospitals found outside this city are small and under the supervision of unspecialized doctors. Health services also suffer from a remarkable shortage of buildings, staff, particularly doctors, and equipment, particularly medicine. Such shortages are more serious in the rest of the Region than in Basrah City.

This does not mean that the health services in this city have no problems. In fact, although these services in Basrah City are much better than those in the whole Region, they still suffer from the problems already mentioned. In addition, they face the pressures of meeting the demands of both the city population and the regional population. Thus, the high demand for such services in Basrah City, of course, leads to a lowering of their standard, so that the health care in all health establishments in the city is of a low level compared with that in developed countries. So, comparatively, the level of health services in the rest of Basrah Region, is very low, with the poorest health establishments in terms of buildings, staff and equipment. All these facts demand that great and urgent efforts should be made to develop the health services in Basrah Region to a level at which they can meet the increasing needs of the whole population in the Region.

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CHAPTER EIGHT

BASRAH CITY : THE REGIONAL CAPITAL

Basrah, as shown in the previous chapters, is a key city in Iraq as a whole and is the principal city of southern Iraq. In addition, as the capital and the central city of its region, its influence dominates the whole Region, not only in administrative relations, but also in different socio-economic relations. So, Basrah City has evolved in certain ways, creating both pressures and opportunities for the city and its population. It has had nearly half the total number of the Region's population; and more than 50% of the total number of Basrah Region's retail, urban industrial, and service establishments have been concentrated in this city. Also, since the late 1960's in Basrah Region all wholesale establishments have been entirely concentrated in Basrah City. These can be looked at through an analytical description of the city's urban characteristics, bearing in mind its functional role for both its local and its regional population. A discussion of these aspects of such a city in the study area is of great importance. Unfortunately, however, such a large and key city needs a detailed study to cover its different aspects, which is beyond the scope of this thesis. So, this chapter aims to discuss some aspects of Basrah City, emphasising its functional relationships with its Region.

In Chapter Six Basrah was discussed as a port, while in the present chapter it is studied as a city. The chapter deals with the historical development of this city; because of the importance of this aspect in the city's life in the past,

present and future, a significant proportion of the chapter is devoted to its history. The chapter also deals with some other aspects of the city such as the physical characteristics of its site, population distribution, land-uses, and functional structure, as well as the regional relationships of the city.

As little relevant published data is available, the fieldwork done by the author is the essential source of the data used in this chapter, particularly in those sections dealing with land-uses, functional structure, and the regional relationships of Basrah City.

Site of Basrah City

Basrah is located on the west bank of the Shatt Al-Arab river, which flows from the confluence point of the Tigris and Euphrates rivers at the northern corner of the City, where the Euphrates forms its northern border. (The section of this river flowing between the Al-Hammar marsh and the confluence point is called Karmat Ali). The City is some 110 km from the mouth of the Shatt Al-Arab, 20 km from the Iraqi-Iranian borders, 50 km from the Iraqi-Kuwaitian borders, and 200 km from the Iraqi-Saudi Arabian borders. It is located at latitude 30°30' north and longitude 47°50' east. The City lies within the area of the date groves which form a narrow strip of about 7 km width on either side of the Shatt Al-Arab, and these date groves form the southern border of the City at present. The Al-Hammar marsh lies immediately to the north-west of Basrah, and low-saline lands lie to the west and the south-west of the City.

Basrah is entirely built on alluvial mud laid down by the rivers, as part of the southern alluvial plain in Iraq, as discussed in Chapter One. The original ground level varies between only 1.00 m and 1.80 m above sea level. Roads and railway lines have been mainly constructed on bunds at elevations between 1.80 m and 2.50 m above sea level. In relatively small areas only, in old Al-Ashar and old Basrah and along Al-Ashar Creek (the old parts of the City), ground levels rise up to about 6.00 m above sea level. (1)

The whole area of the City is interlaced by creeks and canals, the main creeks running inland from the Shatt Al-Arab (see Fig.8.4). The creeks were extensively used for navigation and most of the lower reaches still are. Most of the creeks and canals are used for irrigation and for drainage of the area. These creeks are generally very polluted. Outside the urban area the creeks which traverse and irrigate the date gardens contain water of good quality.

During the floods the water levels of the Al-Hammar, the Carmat Ali, and the Shatt Al-Arab rise considerably above the general ground level of the surrounding land, causing inundation of large areas. To protect the City against these inundations, dams have been constructed around almost the whole municipal area. This protection cannot, however, fulfil its purpose completely. As long as the creeks connect freely with the Shatt Al-Arab river, the high water level will expand over the City. Very high water levels have led to a discharge of water through a floodway west of Basrah City, leading from the Al-Hammar marsh to the Al-Zubair Khur. This floodway has been blocked to a great extent by the construction

of bunds for Basrah-Shiaba railway and the Basrah-Zubair road. The Sbati Al-Basrah project, already under construction, to build a canal linking the Al-Hammar to the Al-Zubair Khur, is intended to re-open this floodway and provide a more sophisticated means of flood control.

The subsoil of the Basrah City area down to 20-30 m below ground level is brown to grey, silty, sandy clay. Thin layers of clayey sand can be encountered occasionally in varying depths. Slightly sandy, silty clay is, however, by far the most prevalent soil type. To the west of the City in the bed of the floodway between the Al-Hammar and Al-Zubair Khur the soil is particularly bad because the salt content is high. The whole area is unsuitable for multi-storey structures, since sizeable buildings must have raft foundations, although many such buildings have been set up in the city. The use of piles is restricted by the cost of sinking piles to the great depth required. (2)

As a result of these physical factors, ground water is a significant problem facing people, particularly in the lowlands in the western parts of the city. In these lands the level of ground water is not more than one metre below ground level, while it rises up to near, or over, ground level during the flood season.

The geological structure of the area, including Basrah City and the climatic characteristics of the City have been discussed in Chapter One.

Historical Development of The City

The first city of Basrah was established in 14 A.H./ 635 A.D. near a ruined town called 'Al-Khurayba'* which was one of the military towns built in Iraq during the time of the Sassanian Empire from 226-636 A.D. and destroyed by the war between this Empire and the Islamic Empire during 12-14 A.H/633-635 A.D. (3) The site of the old Basrah City is 14 km west of the present Basrah, on the edge of the Al-Zubair plateau near the present Zubair City (see Fig.8.1). This site was chosen by Utba bin Ghazwan, one of the Muslim commanders during the Caliph Omar period to build a camp for his soldiers and their families. Reeds were the construction material, which were available in the neighbouring marshes. Two years later when a great fire took place in the military town, reeds were replaced by mud and sun dried bricks. The town was planned, with the mosque, government headquarters and palace, and prison in the centre, surrounded by residential areas. The residential areas included open spaces used as temporary markets. (5) These markets were set up to supply the local demand from families and soldiers living in this town during that early period.

The military victories of the Islamic armies in Iraq and Fars (Persian lands), increased the importance of the town, which became an important administrative and military centre in both Iraq and Fars.

* Al-Khurayba is an arabic word meaning ruin. It is believed that this ruined town was named Wahshita Bazard Shir by the Sassanids, named Deredotis or Tredan by the Greeks, and named Tredom by the Aramians. It is also believed that it was a port located on the Euphrates river which directly joined the Arab Gulf through a valley which can still be seen as an old river course which stretches southwards to the Al-Zubair Khur, on which the ruined city of Basrah is situated. (4)

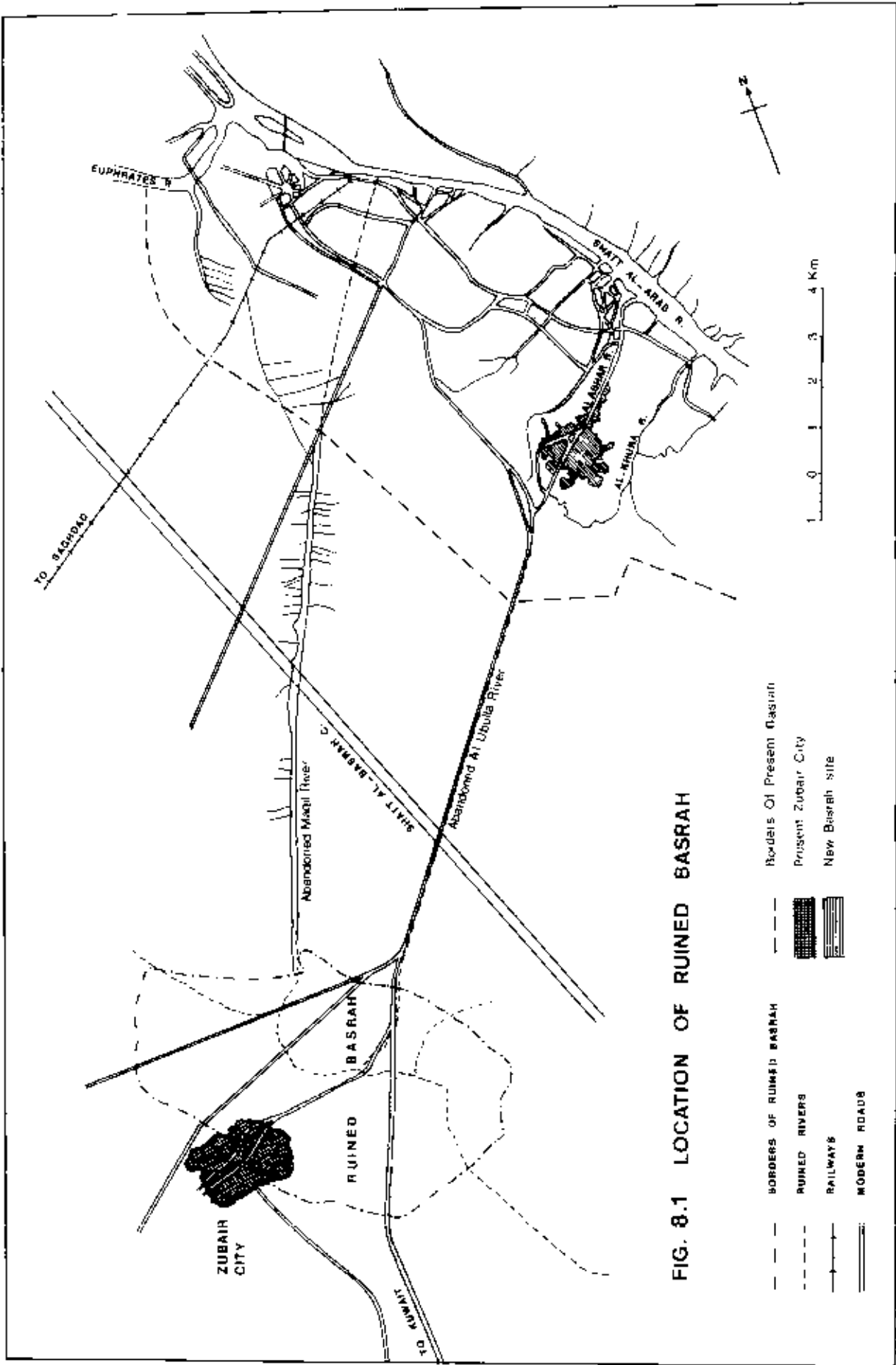


FIG. 8.1 LOCATION OF RUINED BASRAH

Sources: Al-Karad, M. (1971)

In addition, the finances collected by taxes imposed on people in the occupied lands in southern Iraq, Ahwaz and Fars, were distributed to the people in Basrah City which was the regional capital for these lands. This factor raised the standard of living and developed the economic activities in the city. Thus, the economic growth encouraged people increasingly to migrate to Basrah. Both Arabs and non-Arabs, particularly the Persians, were involved in this process. During the period 25-36 A.H./646-657 A.D., agriculture developed in the adjacent areas, and several irrigation canals were dug, the Al-Ubulla and the Al-Maqil being the most important. The total population increased from 800 when the camp was built, to about 230,000 at the end of that period.⁽⁶⁾

During the Umayyad period 661-750 A.D., the importance of Basrah increased greatly, when it became the regional capital of the Umayyad Empire in Iraq. The built-up area of the city extended to cover an area of 57 square km.⁽⁷⁾ Basrah City had commercial relationships with the Arabian Peninsula, Fars, India, and the rest of Iraq. It was the commercial centre, using Al-Ubulla located on the Shatt Al-Arab as its port for sea-going ships. Basrah was joined to this port by the Al-Ubulla canal which was also used for navigation.⁽⁸⁾

During the Abbasid period 750-1258 A.D., the old city of Basrah reached its peak. It became a great city, as a port and market town, with large markets and residential areas, and was famous for its mosques, public libraries and copying houses, and beautiful gardens. Administratively, during this period Basrah was the second city in Iraq after Baghdad which became the capital of the Abbasid Empire, and Basrah

became the regional capital for southern Iraq. In 130 A.H./751 A.D., the total population of the city was about 300,000.⁽⁹⁾ Basrah was famous in the time of Haroun Al-Rashid 165-188/786-809, but declined in importance with the decay of the Abbasid Caliphs.⁽¹⁰⁾

Consequently, the old city of Basrah was not able to remain prosperous, but it was destroyed by rebels and tribesmen from the neighbouring regions. The city was attacked many times, particularly by the Zanj rebels in 240-256 A.H./861-877 A.D., and by the Carmathians during 287-289/908-910 and in 376/997. They destroyed and burned the buildings, killed thousands of the inhabitants, and took over the stores, shops, and houses. During the period 419-700/1040-1321 the city was attacked from time to time by the tribesmen in southern Iraq and the western Arab Gulf, as well as by the Mongol invaders.⁽¹¹⁾ By the beginning of the ninth century A.H. (fourteenth A.D.), the old city of Basrah was completely in ruins, and the remaining people abandoned it to live in the new city of Basrah or elsewhere.⁽¹²⁾ At present, at the site of the ruined city there are many low hills, and a small part still remains of a ruined building called the Mosque of the Caliph Ali, the main mosque in the centre of old Basrah. It is well known that many buildings in the present Zubair City have been built with the bricks taken from the ruins of old Basrah, which led to the disappearance of all these ruins.⁽¹³⁾

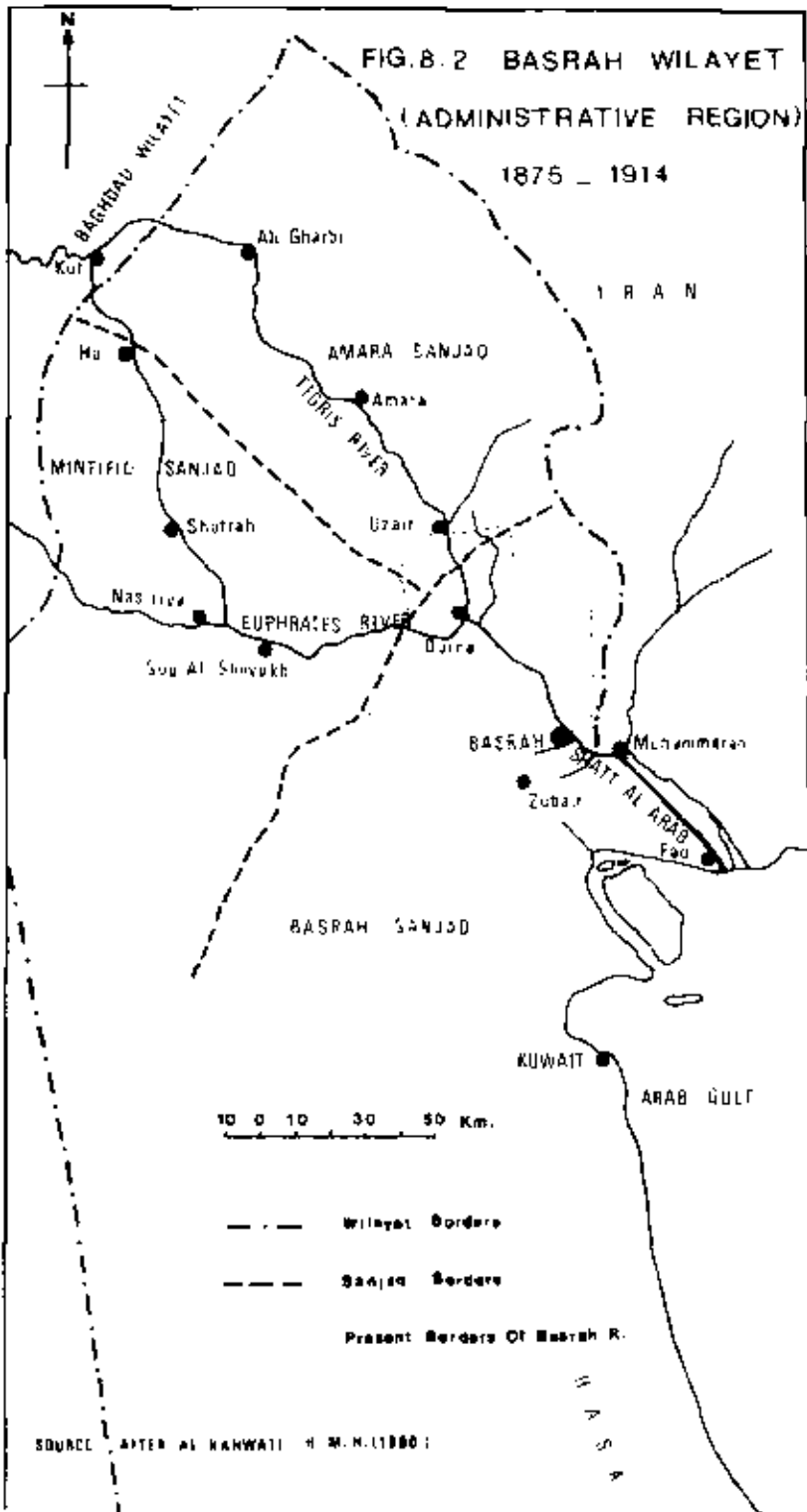
The new city of Basrah grew on the site of the Al-Ubulla port.⁽¹⁴⁾ It is believed that this port was founded at the site of the Al-Ashar district of modern Basrah, and

the Al-Ubulla river is the present Al-Ashar river (see Fig.8.2). This port, which took on the name of Basrah,⁽¹⁵⁾ was at the mouth of its canal, 20 km north-east of the ruined Basrah.⁽¹⁶⁾

Before old Basrah was built in 14 A.H./635 A.D., Al-Ubulla was the most important settlement in the region, and the main Iraqi port to serve the foreign trade with India.⁽¹⁷⁾ Al-Ubulla, the Arab form of the Greek Apologos, dated from Sassanian or even earlier times.⁽¹⁸⁾ Some writers believe it was one of the Akkadian towns in Iraq,⁽¹⁹⁾ founded in the time of Alexander the Great.⁽²⁰⁾ Al-Ubulla was occupied by the Islamic armies in 14 A.H./635 A.D., the same year that old Basrah was built as a camp.⁽²¹⁾

During the time old Basrah was flourishing, its out-port of Al-Ubulla developed greatly to be a large and attractive town.⁽²²⁾ In the 4th (10th) century Al-Ubulla was a town of considerable size, having its own Friday Mosque, which according to Mukaddasi, was a fine building. Nasir-i-Khusran, who was here half a century later, speaks of the palaces, markets, and mosques of the town as then in an excellent state, but the Mongol invasion a couple of centuries later affected all this area, and Kazwini writing in the 7th (13th) century describes it as having gone to ruin. In the next century Ibin Batutah describes Al-Ubulla as a mere village, from which condition it has arisen in modern times to become a city, by the building, on the older site, of New Basrah.⁽²³⁾

In 1500, Basrah was enclosed, with gardens and waste land, within ill repaired mud walls. Its suburb on the



Shatt Al-Arab had but a few houses. It was itself a decayed but not idle port of some ten thousand houses, many of these were reed huts whose owners were scarcely tied to city-life. A few pretentious buildings faced the creek, two miles inland. In 1583 Ralph Fitch saw it as "a town of great trade of spices and drugs which come from Ormus. Also there is a great store of wheat, rice and dates growing thereabout, wherewith they serve Babylon and all the country, Ormus, and all the parts of India." (24)

Under the Turks Basrah gained the standing of a provincial capital* but from 1600 to 1668 direct Ottoman rule was ousted by the local Afrasiyab dynasty. They encouraged arts and learning, dispensed justice, kept Basrah secure from Persian invasion, and enriched the city by welcoming British, Portuguese, and Dutch traders. There was also trade up the Tigris with great trouble and expense to Baghdad, Mosul, and Diyarbekir and across the desert with the Levantine cities and Egypt. Capitulations, first signed at Istanbul in 1661, permitted British trading establishments at Basrah. (25)

In 1688 the army of the Ottoman Empire entered Basrah. The city renounced its special privileges and dangers, and entered the regular administration of the Empire. In 1690 a disastrous outbreak of plague stilled the life and emptied

* During the Ottoman Empire period lasting four centuries up to 1914, the boundaries of Basrah Province varied from time to time depending on the powerful Ottoman governors in Iraq. Sometimes, as in 1875 for example, these boundaries were extended to include all southern Iraq and the western Arab Gulf area involving Kuwait and Hasa (the eastern part of Saudi Arabia on the Gulf). At other times, for example in 1869, the boundaries were the same as in the present, with the addition of Kuwait (Fig.8.2). Before this, the province occasionally consisted only of Basrah City itself, while the surrounding areas were ruled by tribesmen. See, Al-Kahwati, op.cit., pp.33-39.

the busy streets of Basrah. The death-roll was 500 a day. Corpses lay unburied in the bazaars. Briefly, between 1694-1701 Basrah was controlled by the tribesmen, particularly the Muntafig under the Sheikh Mani, but thereafter it has been ruled by governors appointed by the Ottoman ruler in Baghdad. (26)

For the first three quarters of the eighteenth century, Iraq enjoyed a stable government and a comparatively good administration by several strong Ottoman governors of Baghdad. Nevertheless, these governors were unable to protect navigation in both the Shatt Al-Arab river and the Arab Gulf. Furthermore, they were unable to protect Basrah City from the Persian invasions or from the threat of the Arab tribes in both southern Iraq and the Arab Gulf. Although these events affected trade, Basrah was an important commercial centre because of its geographical location; from it goods from India were transported to Iran, Syria, the Arabian Peninsula, and Turkey, and some were transported to Europe by the way of the Mediterranean. Also, exports from these countries were collected at Basrah to be transported to India. (27) In 1723 the East India Company has been allowed to establish a permanent local headquarters at Basrah managed by a Resident. By the middle of the eighteenth century, Basrah was second only to Gombroon in importance for British trade. The British were not the only Europeans represented in Basrah. The Dutch had a Resident at the city for most of the first half of the century, and the French appointed a Resident there in 1739. (28)

All the commercial activities and the prosperity

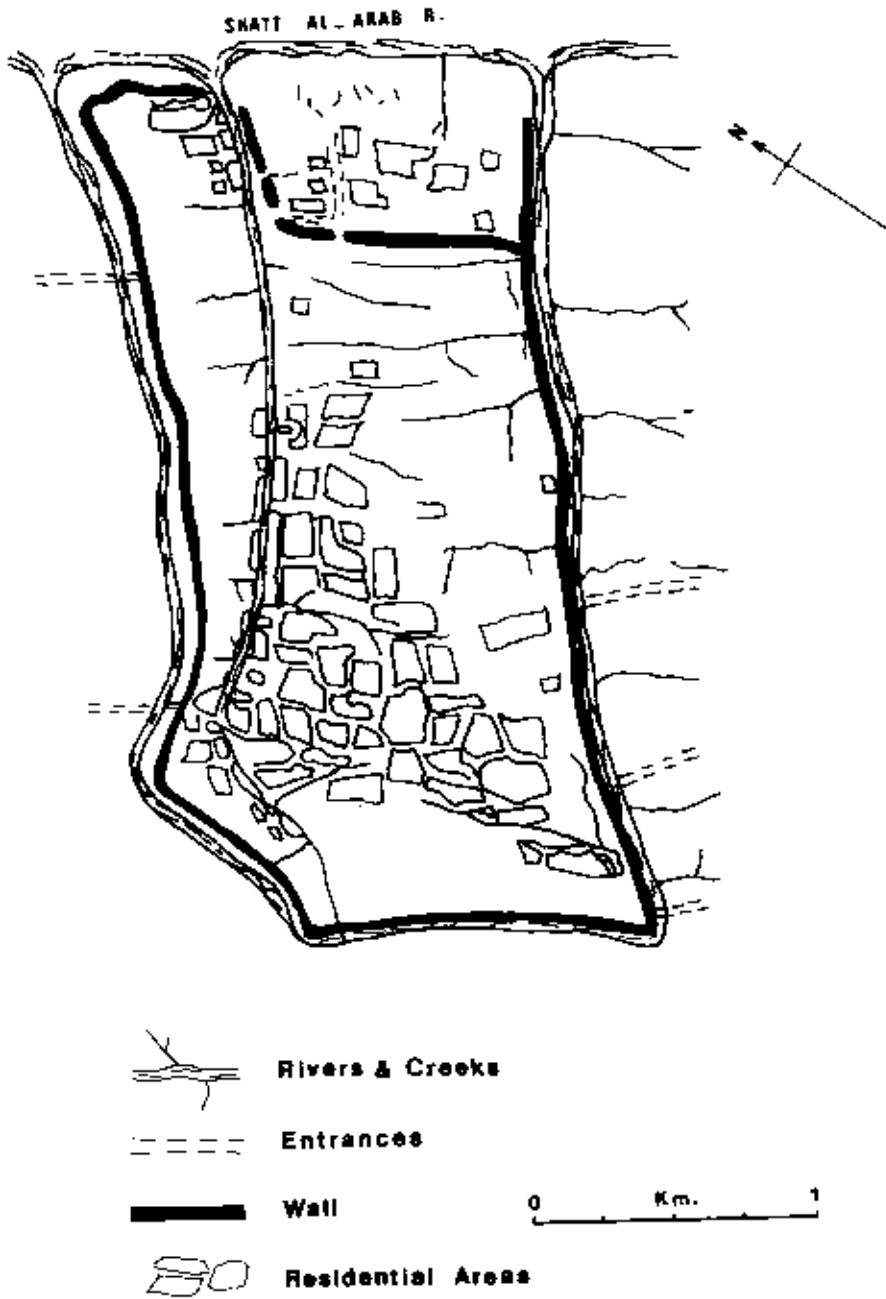
of Basrah were destroyed in 1773 by another natural disaster. In this year the city, as well as the whole province of Baghdad, was struck by a severe plague which destroyed a vast number of its population.* Two years later Basrah was besieged and occupied by the Persians from 1775-1779. The decline in Basrah's trade after 1773 led to change in the East India Company's policy towards the Gulf. Until the end of the eighteenth century, Basrah suffered from the oppression and threat of the various tribes around the city. These events marked the beginning of the end of the favourable conditions for Basrah's trade. (29)

The plan of Basrah City drawn by C. Niebuhr in 1765 shown in Figure 8.3, shows the city as walled and surrounded with a ditch, the northern part of which is today called Al-Khandaq creek, and the southern part Al-Khura creek. The City's built-up area extended along both sides of Al-Ashar creek. The main part of the city was located in the west, far from the Shatt Al-Arab river, at the site of the present old Basrah quarter, while the port, the smaller part, was located at the mouth of Al-Ashar creek near this river, at site of the present Al-Ashar quarter.

In the nineteenth century, Basrah was still suffering from threats and attacks by the tribes in the neighbouring areas, particularly because of the weakness of the administration during the last period of the Mamluk rule in Iraq

* Moore estimated the number of deaths from plague over the whole area at 2 million and those who died in Basrah alone at 200,000 persons, put the population of Basrah at 300,000 before the plague and 50,000 after. Apparently there are some exaggerations in these figures. Ives who visited the city 15 years earlier, estimated its population at 60-70,000, which seems a more reasonable figure. See : Amin, A.M., British Interests in the Persian Gulf, op.cit., p.109.

Fig. 8.3 BASRAH CITY IN 1765



Source: After Amin, A.M. (1967).

which ended in 1831. This situation led to a decline in the commercial activity of Basrah, and in the agricultural production in the city and the surrounding areas. During the period 1831-1914, Iraq was ruled by Ottoman governors who were stronger in controlling tribes than the Mamluk rulers. As a result, Basrah became safer, and the traders and land owners, who had previously abandoned the city, returned to it.⁽³⁰⁾ In that century Basrah prospered from the development of steam navigation on the Tigris river by the Lynch Brothers, as mentioned in Chapter 6.⁽³¹⁾ They established the Euphrates and Tigris Steam Navigation Company, and started operating steamers in the middle of the 1840's.⁽³²⁾ To protect British interests in the Arab Gulf and the Shatt Al-Arab, which increased greatly in the 19th century and the early 20th century, the British naval fleet completely controlled the area and prevented tribes and local people from affecting the navigation throughout these water routes during that period.⁽³³⁾ As mentioned in Chapter 5 and 6, commercial activities of Basrah City increased greatly during the second half of the 19th century, leading to the establishment of the exports-processing industries of the city.

The diseases, particularly epidemics coming from India and the other epidemical areas, were introduced by people arriving in Basrah for commercial purposes, or to visit the Holy Cities in Iraq. In addition, the poor sanitary conditions and medical services contributed to the serious spread of these epidemics in both Basrah and Iraq. Basrah was affected by the plague in 1831, 1875, and by cholera in 1865, 1875, 1876, 1877, 1889, 1893 and 1904. These epidemics, of course, greatly

affected the commercial activities of Basrah and the Arab Gulf, wiped out a large number of the population, and forced others to abandon the city. In 1854 the total population in Basrah was about 5,000, compared to more than 60,000 before these epidemics and the other disasters already mentioned. However, because of the relative improvement of security and sanitary conditions which subsequently took place in Basrah, its population increased slightly to 8-10,000 in 1871. In 1887 the population in the city and its suburbs totalled 40,000, and increased to 60,000 in 1909.⁽³⁴⁾

During the 18th century and most of the 19th century, Basrah City was concentrated mainly on both sides of the Al-Ashar river, at the site of the present 'Old Basrah' quarter, as already described. The city was surrounded by a ruined wall, and most of its houses, bazaars, and government offices were found on the southern side of that river.⁽³⁵⁾ In 1865, Ussher saw the city as a small town, with tumbledown houses and bazaars. He attributed this sad situation to the epidemics and lack of attention by the governors for the city.⁽³⁶⁾

However, Basrah saw remarkable developments in its morphology in the late 19th century and the early 20th century, after the Suez Canal was opened in 1869, when the Iraqi foreign trade increased greatly with Western countries. These developments were concentrated in the port area on the Shatt Al-Arab (Al-Ashar district) and included building wharves, stores, and offices for the foreign trade companies, government headquarters, a customs office, large commercial stores and shops, hotels, houses, and military establishments. These buildings expanded

westwards on both sides of the Al-Ashar river, so that the total population in the port area alone reached about 20,000 in that period.⁽³⁷⁾ Before the First World War began, Al-Ashar developed as the main commercial centre, and the area along the Shatt Al-Arab south of Al-Ashar creek developed as the quarter for Europeans and foreign consuls. The well-to-do Basrawis lived in houses along Al-Ashar creek, both in Al-Ashar and old Basrah quarters. Until the building of the first road along the south bank of Al-Ashar creek, the main means of communication was the creek itself.⁽³⁸⁾ During that period, Basrah City continued to maintain its importance in the Arab Gulf in terms of trade, size of population,* and morphology, compared with the other ports in the Gulf area.⁽³⁹⁾

During the British occupation of Iraq (1914-1920), Basrah became the supply base of all the British forces in Iraq. The most important development to take place in the city was the construction of the modern port and railway station at Maqil, 6 km. above Al-Ashar. These two important establishments greatly increased the commercial importance of Basrah, as discussed in Chapter 6. On the other hand, they also led to the expansion of the city further northwards for the first time, creating a new important part of Basrah, which forms the third nucleus (Maqil) for the present city of Basrah, in addition to Al-Ashar and Old Basrah. To link Maqil and Al-Ashar a road was constructed through the date groves covering the area between these two parts of the city.

* The total population in the ports of Khurramshar, Beshir, Kuwait, in Qatar State, and Bahrain State was 12,000, 15,000, 12,000, 26,000 and 53,000 respectively, compared with 60,000 in Basrah in the first decade of the 20th century.

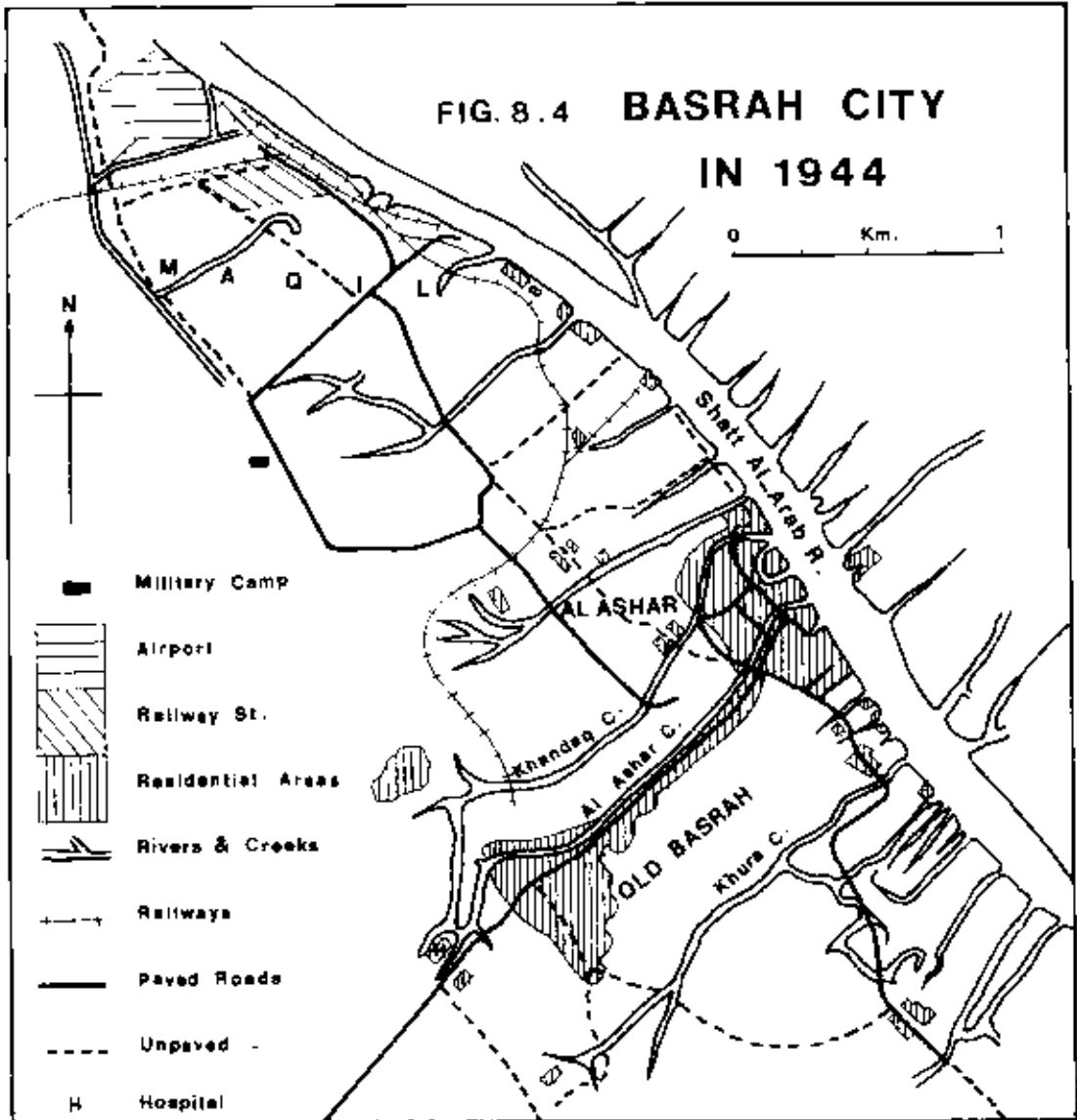
Street lighting was introduced, and certain measures taken to re-organise the municipal government. (40)

From 1921, when Iraq became independent, until the end of World War II, there was some progress in the morphology of Basrah City. The Maude Hospital was built in 1924 west of the Old Basrah quarter.* The airport with a hotel was built in 1936 north of the port. Since 1932, the city has been supplied with fresh water and electricity. In addition, progress included the expansion of the port, the building of some houses, shops and streets, and the establishment of education, health and administration services, industrial establishments, commercial houses, banks etc.

Figure 8.4 shows Basrah City in the mid 1940's. According to this figure, the site of the present Basrah City includes the three quarters of the City : Old Basrah, Al-Ashar, and Maqil; in addition to several large villages. The villages include Jubaila, Manawi, Rubat Saghir, and Ikhwat Razana. All these are surrounded by palm groves, intersected by numerous irrigation channels and minor creeks, which are part of the palm belt of the Shatt Al-Arab. Old Basrah was the main residential area of the Arab population. Though some streets were macadamized and a few were widened to enable two cars to pass, they were generally narrow and unsuitable for motor traffic. The houses varied from burnt brick buildings round courtyards to mud huts and even reed huts in the poorest parts. Al-Ashar was the modern commercial quarter. The main streets were broader than in Old

* This hospital has been named Al-Jumhory Hospital since the Revolution of 14 July, 1958.

FIG. 8.4 BASRAH CITY
IN 1944



Source: Alter Naval Intelligence Division (1944).

Basrah, and there were many good modern buildings, mostly on the right bank of Al-Ashar creek where the principle banks and commercial houses were situated, while on the left bank were the new government headquarters. Four road bridges across the Al-Ashar creek connected north and south Al-Ashar. The primary and secondary schools were in this quarter. Maqil consisted of the residential quarter south-west of the port and railway area, the passenger railway station, airport, and many European bungalows standing in their own gardens. The villages were a "buddle of mud houses and reed huts." (91)

After the Second World War, large numbers of people migrated to Basrah City, mainly from rural areas, as discussed in Chapter Two. As a result, its total population increased from 101,535 in 1947 to 164,905 in 1957. This feature led to the creation and development of large 'residential' areas within the site of the present Basrah City, around its three nuclei : Old Basrah, Al-Ashar, and Maqil. All these new residential areas consisted of a buddle of mud houses and reed huts. The largest areas were mainly concentrated in the northern and western parts of the city because all these parts were uncultivated waste lands, which were mostly state-owned, and distributed free to the poor people at that time, while the remainder, which were privately owned, were rented at very cheap rates. The lands located in the southern parts were covered by the palm groves, and therefore unavailable for residential purposes. Nevertheless, even in the southern parts small residential areas of migrants developed around Old Basrah and Al-Ashar.

The period from the end of the war until 1958 witnessed further expansion in terms of the residential function,

particularly during the second half of this period. At this time the government started to build residential units to house low income government employees in the area, located to the north west of Old Basrah, later called Al-Awsmaii quarter. This development consists of 1,776 units, all completed by 1959.⁽⁴²⁾ In addition, many residential units were set up by the establishment of the port and BPC, to accommodate some of their employees. Also, lands were distributed by the municipality at very low prices to a large number of people for residential purposes in the south-west of Maqil, forming the quarter which has become one of the largest residential areas in the city at present, named Al-Jumhoria. Small residential areas developed in the districts located on both sides of the Al-Ashar creek between Old Basrah and Al-Ashar. In 1956, a new important street was constructed, later called Arbataash Tamoz, through the palm groves to the south of the Al-Ashar creek. This street was a main factor in expanding the city southward, and around it one of the most modern residential areas is found at present, stretching west-east from Old Basrah to the Shatt Al-Arab, south of Al-Ashar quarter.

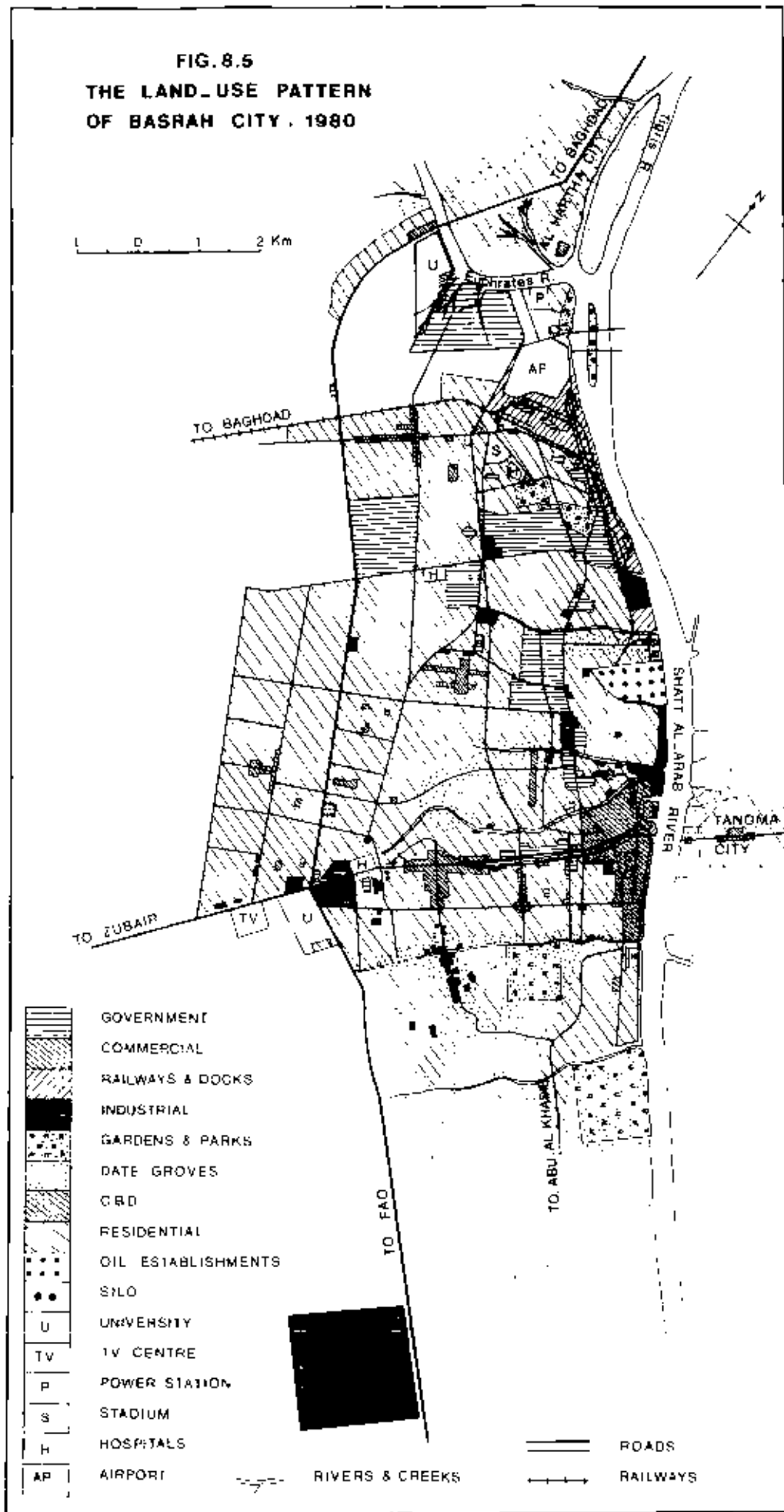
During this period, some progress took place in the industrial sector of the city, when several modern industrial establishments were set up, such as the Al-Mufftia oil refinery, a large grain mill, and two large soda-water factories. All these were located between Maqil and Al-Ashar.

Basrah City 1958 - 1980

This period is the most important in the history of Basrah City in terms of its development in size and landscape developments, to which the city mainly owes its present status. Since the Revolution of 14th July 1958, significant changes have taken place in the socio-economic life in the country. One of the most important changes throughout the country has been the great urban development, which is attributed to several factors. These are, in addition to the rural migration and higher standard of living in urban areas: the increase of the municipal facilities because of the greater oil revenues, government trends towards modern urban planning, the creation of governmental housing programmes, the creation of cooperative housing societies, distribution of government owned lands to people of low income, and increase of government bank facilities to encourage people to build their own houses. Basrah City, which has specific characteristics distinguishing it from other Iraq cities, as mentioned previously, has attracted different urban functions, and expanded greatly so that it has become the second most important city in the country in terms of population size and development of land uses.

During this period, the most significant progress in Basrah City took place in the great development of the residential function, in the form of the expansion of the existing residential areas, and the appearance of new residential areas in different parts of the city. (see Fig.8.5). As a result, the city's built-up area extends northward to the Euphrates river, southward beyond the Al-Sarraji creek, and

FIG. 8.5
THE LAND-USE PATTERN
OF BASRAH CITY, 1980



a long way to the west. In fact, the Basrah-Baghdad Highway, previously two kilometres west of the city, is now more than three kilometres within the city.

Eastwards, the Shatt Al-Arab river has greatly affected the expansion of Basrah City in this direction, because this river is large (about 500 metres wide at Basrah City), and navigable for sea-going vessels docking at Basrah Fort at the northern extreme of the city. All these facts have made it difficult to build bridges across the river to facilitate the movement of people and traffic between its two sides, and to expand Basrah City on the eastern side of the river. Nevertheless, the growth of Tanoma City (Shatt Al-Arab City) on the eastern side of this river, has been greatly affected by the rapid growth of Basrah City in recent years. The same can be said for Hartha City, which is on the other side of the Euphrates (Karmat Ali), just opposite Basrah. Both are, effectively part of the Greater Basrah conurbation, despite being administrative centres in their own right.

At present, the sites in Basrah City that were empty or covered with date groves, are used for different urban functions. The high pressure on land has created a very high demand for it, which has led to the great increase in land prices in the whole city. In 1980, land prices ranged from ID 15 to more than ID 200 for one square metre for different land uses. This situation has forced people to live in the adjacent cities or settlements rather than in Basrah City itself. Among the significant developments taking place in this period, was the sarifa* clearance programme, which was laid out in 1965 and completed in the mid 70's.

* Sarifa means reed hut.

This programme presented two approaches to the problem. One involved some housing schemes like those introduced by the General Establishment of Iraqi Ports. The other involved distribution of government owned lands to sarifa residents in Al-Hussain quarter, the area west of Basrah City.

Basrah City has also witnessed significant developments in other land uses. Commercial land use, for instance, has developed greatly since 1958. In addition to the great expansion of the CBD in Al-Ashar, commercial land use has also appeared in different parts of the city, and then, several types of commercial structures have developed within the city structure. The number of industrial establishments, both small and large, has increased, and they are now distributed in many places throughout the city, after having been concentrated in and around Al-Ashar. The whole city has been provided with modern streets and bridges, although some transport problems still face some parts of the city. New large public gardens and parks have been laid out throughout the city. One of the three most important public gardens was opened in Maqil in the early 1960's, named Al-Andalus. The other two gardens were opened in 1978-1979, at the southern extreme of the city. One of them, named Al-Khura is found on the southern side of Al-Khura creek, and the other, named Al-Saraji, is found on the southern side of the Al-Saraji creek, at the corner which is bordered by the Shatt Al-Arab river and this creek. The services sector, both public and private, has also developed greatly in terms of number and quality of the service establishments; those of education and health have been discussed in Chapter seven, while the others will be discussed later.

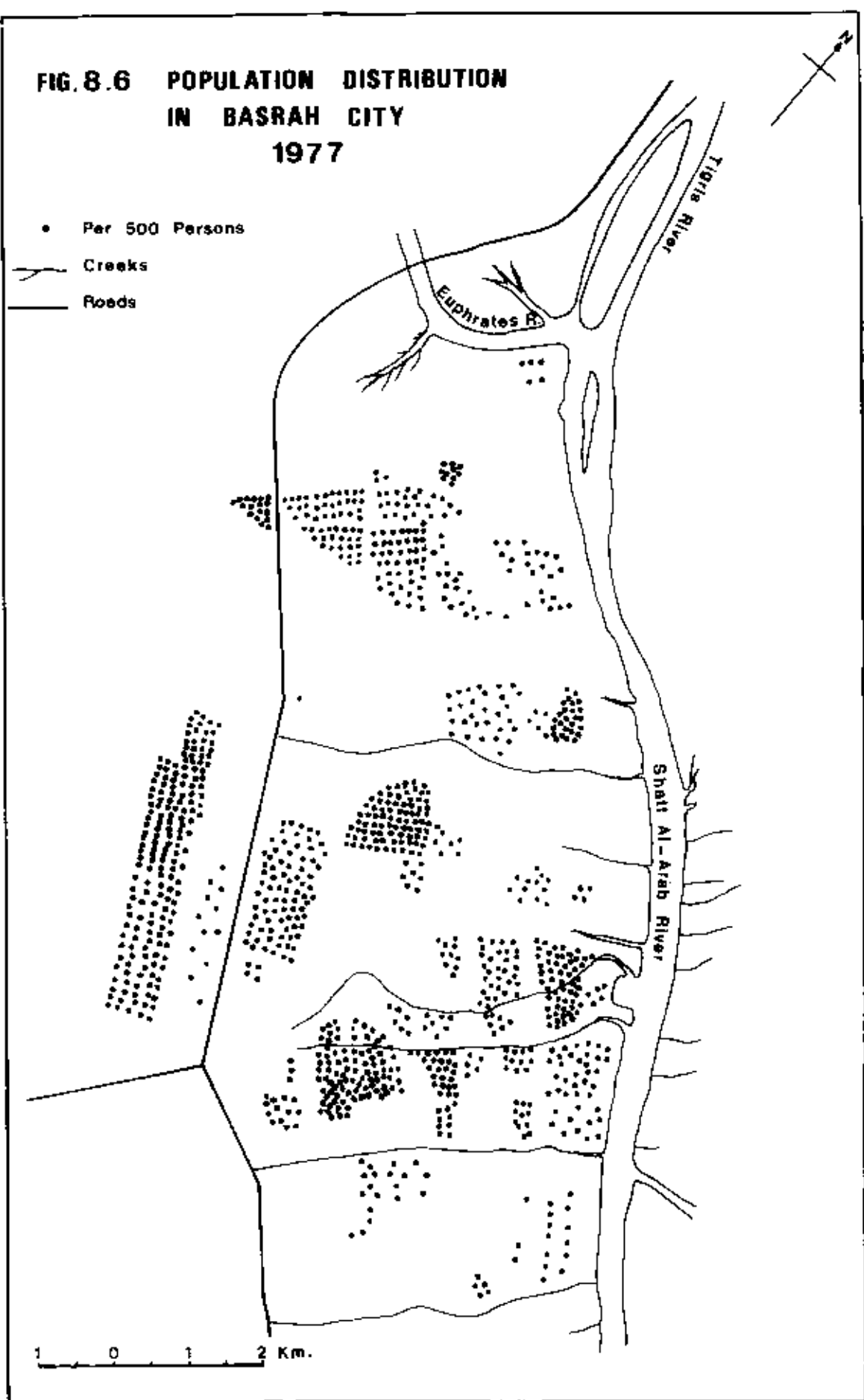
Finally, it can be concluded that Basrah City, although built and developed as a real Arab and Islamic city in its internal structure during the early and middle stages of its history, has been affected by foreign urbanization trends over the past two centuries. Some changes in landuses and house design took place in the city during the Ottoman Empire, affected by Turkish and European trends. However, the significant changes in Basrah City have taken place in the present century, particularly since the late 1950's, and the city owes its present townscape to these. The city's structure has been greatly affected by Western urbanization trends, so that all the traditional Arab and Islamic structures of the city have disappeared, except for a few remains restricted to small and limited areas within Al-Ashar and Old Basrah districts, the oldest parts of the city. These remains are represented by Eastern design old houses, narrow and unplanned lanes, and a few mosques.

Population Distribution

Figure 8.6 showing the population density in 1977, reveals some striking variations within the overall urban framework. In general, it is concentrated in some places forming residential areas of high population density. These areas are mainly found in the western half of the city, for example at Al-Hussain, Al-Hadi, Al-Jumhoria, Al-Asmai, Old Basrah and its surrounding areas. Population is also concentrated between Al-Ashar creek and Al-Khandaq creek, north of the Al-Khandaq, and south of the Al-Ashar, although the population density within this area differs from place to

**FIG. 8.6 POPULATION DISTRIBUTION
IN BASRAH CITY
1977**

- Per 500 Persons
- Creeks
- Roads



place. The figure shows that several populated areas of low density are distributed between the previous areas, particularly in Maqil, between Maqil and Al-Ashar, between Al-Ashar and Old Basrah, and south of Al-Khura creek. It also shows that there are large unpopulated areas, distributed throughout the city. Some of these are still covered by the palm groves particularly on both sides of the Al-Khura creek, stretching to the south of Al-Saraji creek. They are also found between Maqil and Al-Ashar, and between Al-Ashar and Old Basrah. Large areas are unpopulated because they are reserved by the government to be used for particular purposes which, probably, will include residential land use. Some large areas are unpopulated because of the other land uses in the city, such as commercial land use, industries, services, port, airport, parks and public gardens and military establishments etc.

Moreover, the pattern of population distribution, as shown in Figure 8.6, which is represented by the distribution of the residential areas in the city, is attributed to several reasons, which also account for the distribution of the residential areas. Therefore, they will be discussed in detail in the next sections dealing with land uses.

In fact, the distribution of population in 1977, is very different from the distribution in the early 1980's. As noted in Figure 8.5, which shows the distribution of land uses in Basrah City in 1980, the residential areas are much larger than those which were populated in 1977. In the last five years the population of the city has increased greatly, which is mainly attributed to the increasing

migration, particularly from abroad. In addition, the rising standard of living, and increasing availability of bank loans which are offered to all people, have boosted housing developments and spread the population widely throughout the city, where the existing residential areas have been expanded, and new residential areas have been created.

Basrah City : Land-Uses

Land use type within Basrah City represents the full range of functions expected in a city of its size. It is the distribution of these categories, strongly influenced by the peculiar physical constraints of Basrah's location, which make an analysis of Basrah in this context particularly interesting, and not least of these categories is that of vacant or semi-derelict agricultural land, a class that is particularly important because of its potential for the future. How are the land uses arranged and what spatial relationships do they exhibit and generate? (43) The answers to this question will now be considered.

The city, in spite of its great extent and the heterogeneous character of its build and population, is in many ways a unit of social life and organization. It is also an aggregate of small homogeneous units, each having distinctive characteristics and playing a special role in the life of the city as a whole, and all finding their common nerve centre in the central business district, the site of the original town. (44)

The dynamic character of the urban land-use pattern was emphasized by Charles Colby. (45) He said that the modern

city is a dynamic organism constantly in process of evolution. This evolution involves both a modification of established functions and the addition of new functions. Such functional developments call for new functional forms, for modification of forms previously established, and for extensions of realignments of the urban pattern. These developments, he claimed, are governed by forces, among which two groups stand out. One group is made up of the centrifugal forces which impel functions to migrate from the central areas of the city towards or beyond its periphery; the second group includes centripetal forces, which hold certain functions in the central zone, and attract others to it. The centrifugal forces are made up of a combination of uprooting impulses in the central zone and attractive qualities of the periphery, while the centripetal forces focus on the central zone and make that zone the centre of gravity for the entire urban area.

In Basrah City, as in other large cities, the land-use pattern has been effectively governed by these two groups of forces. Al-Ashar district, being the central zone of rapidly growing city, always shows evidences of expansion. This zone, which includes the Central Business District of the city, is expanding in different directions, though not eastwards, because of the Shatt Al-Arab. The CBD has expanded largely northward beyond the Al-Khandaq creek, southward across the Al-Khura creek, and westward on the road linking Al-Ashar and Old Basrah and adjacent areas. This expansion is occasioned both by the overflow of certain functions from the inner zone and by the concentration of other functions in the inner zone. Both centrifugal and centripetal forces, therefore,

are at work, by which the middle zone and the peripheral zone of the city are affected.

The movement of certain functions from the central zone to its periphery or the other zones, is attributed to the uprooting conditions of these functions in the central zone. These are : high land and property values; traffic congestion; difficulty of securing adequate space for expansion; desire of factory owners to avoid nuisance complaints; inability to obtain sites with the necessary special qualities; and miscellaneous handicaps such as irksome legal restrictions, outgrown laws, and the declining social importance of certain areas.⁽⁴⁶⁾ In addition, some parts of the central zone still consist of old buildings and inadequate social conditions, which force some people and functions to migrate from these parts to other parts with adequate conditions.

The centrifugal tendencies growing out of the uprooting factors in the central zone are intensified by the attractive qualities of the outer zones of Basrah City. These include the availability of large parcels of unoccupied land, which can be obtained at relatively low cost; the presence of transportation services suited to the migrating function; attractive site qualities particularly for certain functions such as recreation, parks, and public gardens; and control of a sizeable area. Such control, in the case of the residential function, makes it possible to have freedom from smoke, noise, or other nuisances, and the privilege of imposing zoning systems in relation to the type of occupancy.⁽⁴⁷⁾ All these attractive qualities have led to the great development of residential

functions in the outer zones of Basrah City, particularly in the western parts as mentioned previously. For manufacturers, it means freedom to extend and to operate the plant, to dispose of waste, to transport, and to develop a particular type of community. As a result, a large area in south-western Basrah City has been devoted to industrial purposes, and many industries have moved there from the central zone and the adjacent areas (see Fig. 8.5). To the same qualities it attributed the building of the Al-Majibia power station on the Karmat Ali, at the northern edge of the city. The choice of the new site of Basrah University west of that station is also attributed to the attractive qualities of the outer zones of the city. The same can be said about many functions which have appeared in these zones. It is sometimes necessary to integrate comment (not merely discussion) in order to separate these items.

The centripetal forces in urban development focus on the central zone of the city and, as already mentioned, the central zone is the centre of gravity of the entire metropolitan area, 'central' being a functional expression here, not a locational one. In Basrah City this zone is characterized by the great number and complexity of its urban functions, and by multiple levels of use, extending from the lowest basements to the highest floors of tall buildings. Land values in this zone are high, in harmony with the intensive use of the land. Such intensive use indicates that the central zone possesses assets or qualities which make it highly attractive to many functions. All of these, such as Colby's (48) 'site attraction'; 'functional convenient'; 'functional magnetism';

'functional prestige'; and the 'human equation', will be considered in detail in the section which deals with the commercial function of Basrah City.

In addition to centrifugal and centripetal forces, of the physical limitations, several factors that help to explain the urban land-use pattern remain to be discussed. These are grouped in three sets : economic factors; social factors; and public legislation. The operation of economic forces assume the free operation of the law of supply and demand and that the use of any portion of land is determined by the factors of maximum economic efficiency, maximizing returns from a transaction involved in the purchase of the land for a particular purpose. The land value is affected by the location of the parcel of land, and by its space relationships with the other parcels of land. Thus certain locations are more highly valued for certain land use than other sites. (49) This factor has played an important role in the development of the land-use pattern of Basrah City. In recent years, land owners have preferred to sell their lands for certain urban land uses such as for residential, rather than for agricultural, (palm groves), land use. This is because the new land uses have much higher returns than those from the previous land uses which have been seriously affected by the city's growth. In the central zone, residential land use has competition from other functions attracted to this zone. These functions are able to give much higher returns than those from the previous functions, and thus, they are able to obtain parcels or properties of high value. The same can be said about the commercial sub-centres, or commercial streets, and other

commercial clusters throughout Basrah City. Also, certain locations are more highly valued for residential use than other sites in the city, and attract people of high or medium income, lands such as those found between Maqil and Al-Ashar, on both sides of Arbataash Tamos Street, between Al-Khura creek and Al-Saraji creek, and between Old Basrah and Al-Ashar. These are very convenient for residents because they are located around the central zone, far away from the popular quarters with its social problems, and have other attractive qualities which make them preferable to other locations. Thus, the land in such locations is of higher value than that in others used for residential purposes. On the other hand, the waste lands in the western half of the city have been occupied by the poor people, and officials and workers of low and limited income. Here, the land values are very cheap or free, distributed by the government or the cooperative housing societies. The low land values on these locations are attributed to several problems, among which are the distance factor from the central zone and other locations within the city, transportation limitations, social problems, and lack of some urban facilities.

The social factors have an important influence on the land-use pattern. These are at work together with the economic factors, and it is impossible to separate each of them from others. Residential segregation, dominance, invasion and succession are social features affecting the city structure.

Residential segregation means the concentration of residents into districts similar to the concentration of

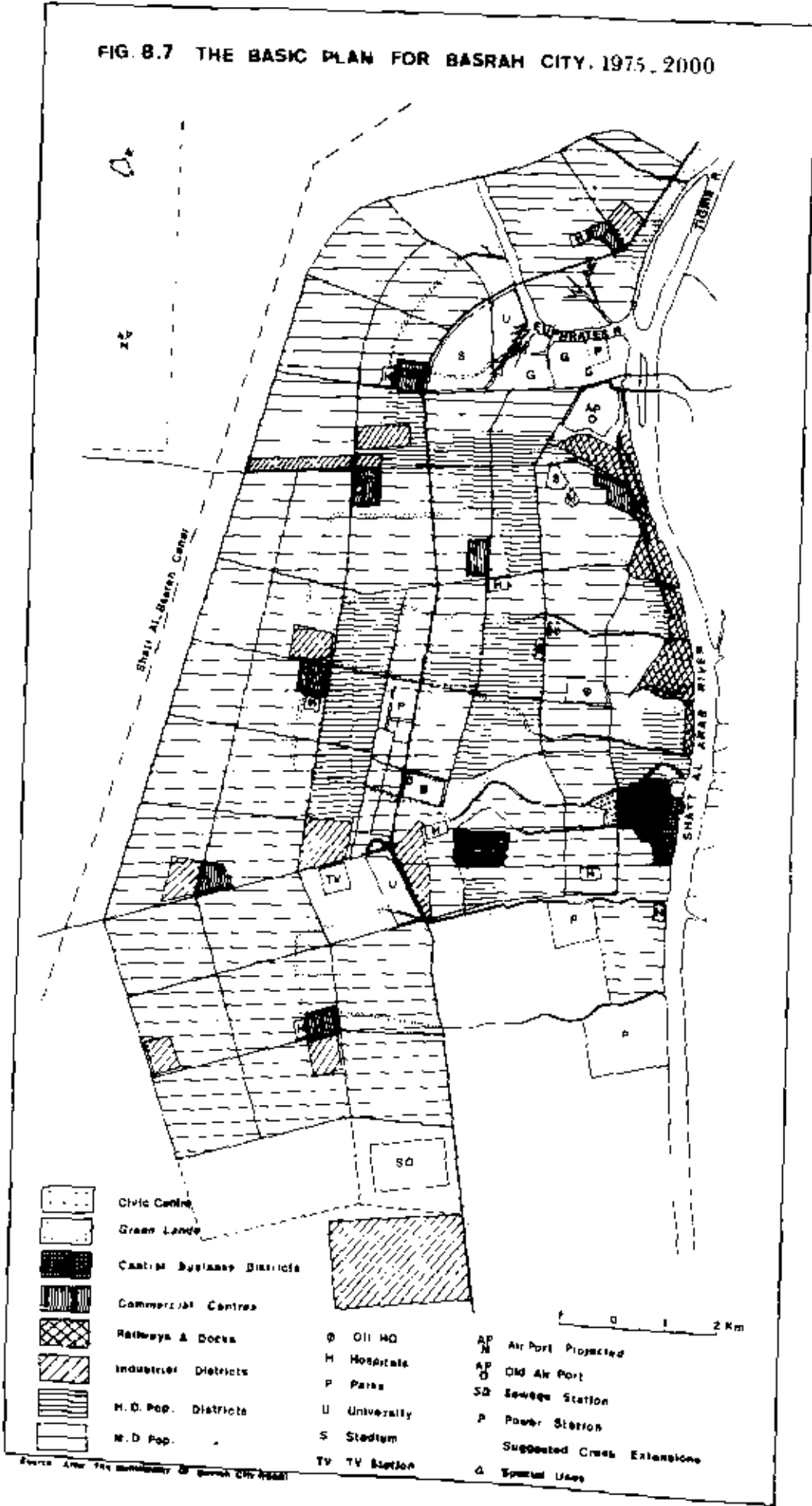
distinct economic uses. Individuals tend to gravitate not only to areas in which they can compete more efficiently for a livelihood, but to areas populated by others of similar race, interests, culture, or economic status. This situation is very clear in the structure of Basrah City, where the residential areas can easily be identified according to this concept, and the type of buildings is a good indicator of residential segregation, the paramount factor in which is socio-economic.

Dominance refers to the tendency for a given use to be established in an area, so that competition from other uses is not very effective. Under such situations, the old land uses or occupants move out and new ones come in, as has taken place in the central zone of Basrah City where a large number of old dwellers have migrated to the other zones of the city under the pressure of new functions and occupants who are socially different from them.

The public interest also determines land uses through the development of legislation to promote socially desirable objectives, such as the protection of the health, welfare, morals, and safety of the people. It is reflected in by-laws pertaining to sanitation, housing, building-codes, controls of the location of non-residential uses in residential areas, protection against atmospheric pollution, accidents, noise, smell and smoke, and even against building proposals considered to be offensive to public taste. One of the widest regular controls is exercised through the control of densities of residential population. (50)

Many of these measures are embodied in the zoning laws which have been recently adopted in Iraq. Accordingly, all the cities in the country have been provided with a basic development plan to control their land-use pattern at present and in the future. Zoning ordinances divide the city into separate use zones such as commercial, residential, industrial etc. and break it down further into subzones. This pattern of land-use has become clear within the structure of Basrah City at present. It can be clearly noted that the city is divided into separate zones, particularly the residential areas which have developed out of the two old existing main centres : Old Basrah and Al-Ashar (see Fig.8.5). The most important recent application of zoning ordinances in Basrah City, is the basic development plan which has been adopted to cover the period 1975-2000, as shown in Figure 8.7. According to this plan, Basrah City will mainly have to expand westward, south-westward, and north-westward beyond Hartha City, while it will be prevented from expanding eastward and southward. The planners see that the Shatt Al-Arab river is a great obstacle to city expansion eastward, as mentioned previously. On the other hand, to protect the date palms in Iraq, the government has forbidden the felling of these trees and the changing of dates groves into other land uses. This is the reason why the government is preventing Basrah City from expanding southward where large areas of date groves are found directly south of the city, forming part of the main belt of date groves on the west bank of the Shatt Al-Arab river, as mentioned previously. It should be noted here that the

FIG. 8.7 THE BASIC PLAN FOR BASRAH CITY, 1975-2000



- Civic Centre
- Green Land
- Central Business Districts
- Commercial Centres
- Railways & Docks
- Industrial Districts
- H.D. Pop. Districts
- N.D. Pop.

- Oil HQ
- Hospital
- Parks
- University
- Stadium
- TV Station

- Air Port Projected
- Old Air Port
- Sewage Station
- Power Station
- Suggested Creek Extensions
- Special Uses

0 1 2 Km

Source: After the author's study of Basrah City Road

reasoning behind both these bans is not completely correct. The construction of a bridge across the river, like the Khalid Ibin Al-Walid Bridge, would provide an adequate way of solving the problem of how to link Basrah City and the eastern side of the river. Concerning the southward expansion, as mentioned in Chapter 4, the date palms are suffering from several problems, so that the returns from this economic activity are insignificant. Thus, the existence of a few kilometres of date palm areas must not prevent such an important city as Basrah from expanding into some of the best lands which are most suitable for urban land use, compared with those to the west.

In addition to zoning systems, there is another way, too, in which the local government is changing the land-use pattern of the city. This is through urban renewal, undertaken normally by the municipality of the city. Three different levels of urban renewal are recognized. Conservation, the first of the three levels, is a type of renewal treatment aimed at restoring the economic and social values of deteriorating areas. Some structures are classified as standard, some as conservable, and some as requiring demolition. Rehabilitation implies even stronger measures; it is the second level of urban renewal. The third and most drastic level is clearance and redevelopment. Property is purchased by the municipality, structures are cleared, utilities are installed, and other site improvements are made. The property is then sold or leased to redevelopers who build new structures on these sites according to urban renewal plan prepared by the government. In contrast, the most observable effects of

zoning are likely to be in the newer, undeveloped sections of the city, whereas urban renewal has its chief effects in the older sections. Urban renewal projects have often been concerned with blighted residential areas.⁽⁵¹⁾ Old Basrah and Al-Ashar have witnessed a significant process of renewal during recent years, particularly in opening new large streets through the residential areas within these two quarters, such as Al-Kuwait Street in Al-Ashar which is one of the most important commercial streets in the city, and Bashar Street in Old Basrah which has attracted many economic activities including commercial. Renewal is also represented by : construction of new recreation parks, car parks, and many government buildings; rebuilding of some mosques; conservation of some old buildings named "Shanashil"*; expanding and rebuilding of some streets; building of new markets, hotels, restaurants, etc. Most of these procedures have taken place in Al-Ashar.

The Pattern of Land-Uses

It is useful to consider some of the conceptual systems which have been offered in explanation of land use patterns of the city. Many studies of the city have claimed that there is, and have tended to follow one or another of three ideas that have been advanced. There are generally described as the concentric zone concept, the sector concept, and the multiple nuclei concept,⁽⁵²⁾ as shown in Figure 8.8.

It is interesting to consider these Western models in studying Basrah City, which was originally built as an Arab and Islamic city, but has been greatly affected. particularly

* These are a Turkish design.

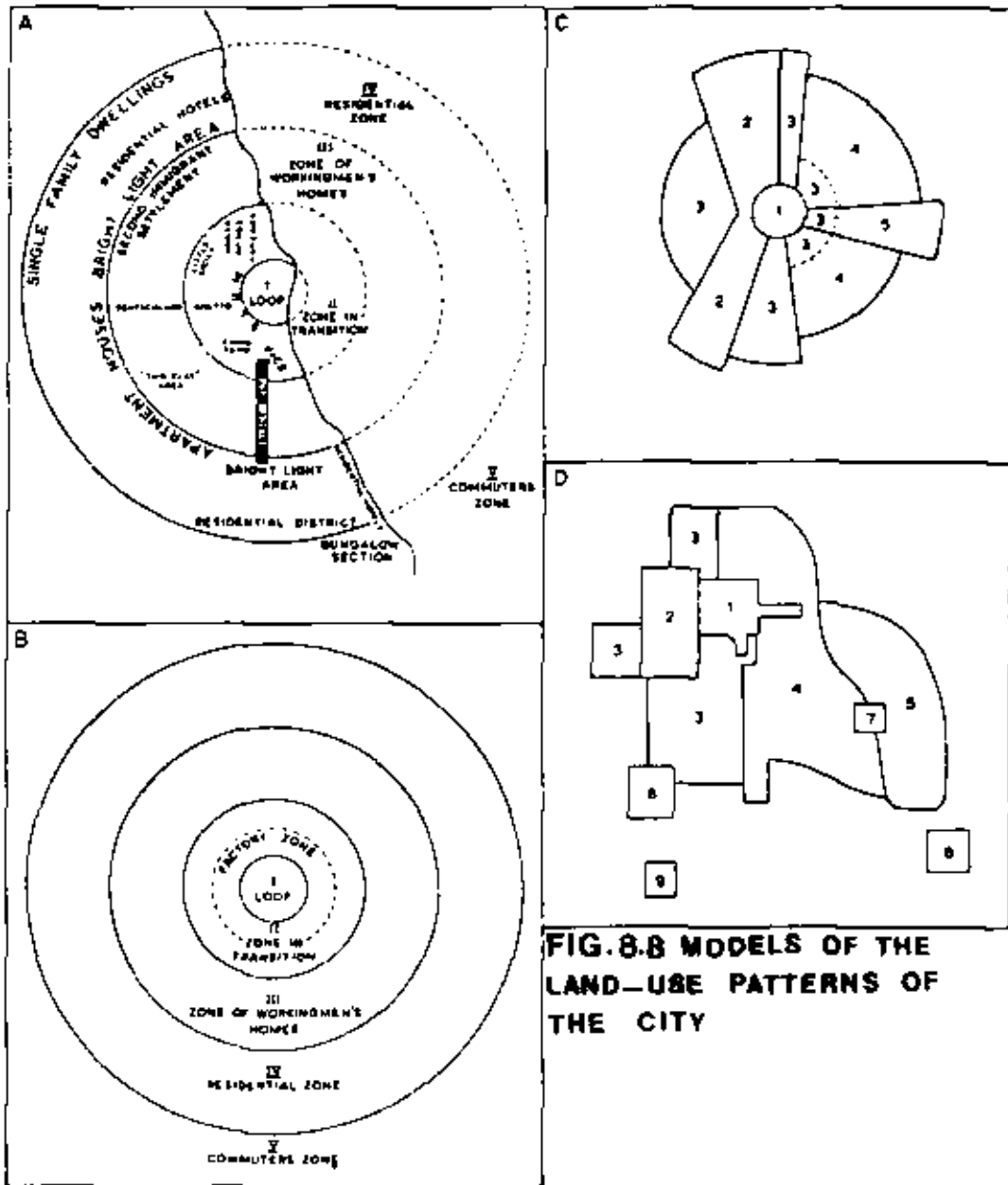


FIG. 8.8 MODELS OF THE LAND-USE PATTERNS OF THE CITY

EXPLANATION : The concentric zone scheme of urban land-use. *After E. W. Burgess (1925)*. **A** indicates Burgess's detailed interpretation of Chicago while **B** is his generalization for all rapidly growing industrial cities.

C: The sector scheme of *H. Hoyt (1939)*: **1**: CBD; **2**: wholesaling and light manufacture; **3**: low-class residential; **4**: middle-class residential; **5**: high-class residential.

D: The multiple nuclei scheme of *C. O. Harris and E. L. Ullman (1945)*. The areas numbered are as in **C** with the addition of: **6**: heavy manufacturing; **7**: outlying business district; **8**: residential suburb; **9**: industrial suburbs.

in this century, by Western urbanization trends. So, the present status of this city, which is very different from the traditional structure of the Arab and Islamic city, and similar in many aspects to the Western city, provides a suitable opportunity to consider these models in a discussion of its land use pattern.

According to the concentric zone model which was advanced by Burgess, the pattern of growth of the city can best be understood in terms of five concentric zones.⁽⁵³⁾ In the case of Basrah City, the pattern of land uses, as shown in Figure 8.5, is completely different from the Burgess's model. This city has no concentric zones, but takes the form of rectangular areas alongside the Shatt Al-Arab river. It is usual, in arid regions, for the structure of cities to be greatly affected by the rivers, while Burgess's model did not take due account of relief and climate. In addition, the locations of the land uses in the model are different from those in Basrah City. In Basrah the central business district is found at the eastern edge of the city, surrounded by residential areas of different levels ranging from the poorest to the highest quality. The city has, in addition to the CBD, several commercial sub-centres. The areas of working men's homes and low income classes are distributed not in one zone as shown by the model, but at different locations throughout the city. Also, the medium and high-quality housing areas are found at different places within the structure of the city, both around the central zone and in the middle and outer zones.

A particularly critical aspect of the concentric zonal model is that the zones are by no means static. Each, under the conditions of normal city growth, tends to extend its area by invading the next outer zone. The process has been likened to the outward movement of ripples when one tosses a stone into a still pond.⁽⁵⁴⁾ However, this kind of process has never taken place in Basrah City, where the growth has been irregularly influenced by several factors, one of which is the centrifugal force, already discussed. Burgess's model was formulated with special reference to the sociological structure of the urban community of Chicago, which has individual conditions differing in many respects from those in Basrah City.

The second model, the sector model, was put forward by Homer Hoyt, after a well-known study of residential areas in the United States provided some new insights into the patterning of land uses and led to a theoretical explanation of residential land uses in terms of wedge-shaped sectors radial to the city's centre along established lines of transportation. This model holds that the different income group classes of a city tend to be found in distinct areas describable in terms of sectors of a circle centred on the central business district.⁽⁵⁵⁾ However, in the case of Basrah City, this model is also inappropriate, both in the shape of its zones and in their distribution within the structure of the city. There is no circular system whether in the form of the CBD or other zones and no wedge shaped sectors in Basrah City, where the land use areas have developed in different forms. Some residential areas are quite similar to those found in

the sector model in terms of their locations, such as the low-quality residential areas surrounding the CBD, but these are discontinued or bordered by residential areas which differ from those in the model. In addition, the model bases its explanation of the distribution of residential areas on the rent of lands and lines of transportation along which the sectors radiate from the city's centre. However, there are several factors influencing the land uses pattern in Basrah City, such as zoning and other governmental controls which are not taken into account by this model.

The third model is the multiple-nuclei model put forward by Harris and Ullman. According to this model, in many cities the land use pattern is built not around a single centre but around several discrete nuclei. The initial nucleus of the city may be the retail district in a central-place city, the port or rail facilities in a break-of-bulk city, or the factory, mine, or beach. The number of nuclei which result from historical development and the operation of localization forces varies greatly from city to city. The larger the city, the more numerous and specialized are the nuclei. (56)

To a certain extent, the ideas of this model concerning the multiple nuclei, can apply to Basrah City in which there are several nuclei. In addition to the three existing main centres : Old Basrah, Al-Ashar and Maqil, other centres have developed separately within the structure of the city, such as Al-Jamboria, Khamsa mile, and Al-Hussain. All of these are large residential areas including commercial sub-centres. Also, Basrah City is similar to the model in some of its

land-use distribution, such as the location of the mixed light industry district which is found south-west of Basrah City such as district 9 in the model. There are two residential suburbs adjacent to Basrah City, Hartha and Tanoma, equivalent to district 8 in the model. The City also, has outlying business districts as shown in the model (7). The central business district in Basrah City is irregular in form, as in the model yet the land-use pattern of Basrah City is different from the model in many respects. Basrah City has no one wholesale and light manufacturing district as in the model. The wholesale establishments are concentrated in the CBD itself, while the light manufacturing establishments are distributed in many locations throughout the city as well as being concentrated in the CBD. There is no single heavy manufacturing district within the structure of Basrah City equivalent to 6 in the model. The number, form and distribution of the residential districts (3, 4 and 5) in the model are different from those of the residential areas in Basrah City, although the CBD is surrounded to the north first by low-class residential areas and then by medium and high-class residential areas. However, one similarity can be noted, and that is the existence of a high-class residential area at the southern edge of the city close to Al-Khura creek and Al-Saraji creek, like district (5) in the model, although this is not the only high-class residential area; there are others throughout the city.

So, it can be concluded that although the land-use pattern of Basrah City is quite similar in some respects to the multiple nuclei model, in many other respects it is different from this model, whereas it is completely different

from the first two models.

However, as shown in Figure 8.5, the land-use pattern of Basrah City has special characteristics by which the city differs from other cities. Even the Iraqi cities which share some common characteristics in terms of land-use pattern, each have their own individual pattern. Of course, the variation of land-use pattern from city to city, is attributed to the fact that each city originates and develops in specific conditions, and is affected by certain factors differing from those which influence the development of the other cities. Among these are the historical development, topography and other peculiar circumstances of the site, geographical location and spatial relationship of the city, socio-economic factors within the city, the human and physical characteristics of its region, individual decisions, and the decisions which are made by the local and central governments. The city's plan introduced by the local authorities has been the most important factor to control growth of the city.

The Functional Structure of Basrah City

Cities perform different functions in varying degrees. The importance of these functions differs in terms of the number of employees, the sphere of influence, and the number of people needed. Also, these differ depending on the area of land used in the city. In this situation, there is not necessarily any relationship between the area of land and the importance of the function. As Figure 8.5 shows, in Basrah City, for instance, most of the lands are devoted to the residential function, which serves the local population of the city itself, while a small proportion of the city's area is

used by the commercial function, although a high proportion of its activities is performed for the people living in the city region. This proportion is the most important for city growth, according to the concept of "Economic Base" as discussed in Chapter 4.

In this section we are concerned with the functional activities of Basrah City, and with functional land-use. This section deals only with the functions which include a basic activity or regional element. These are : the commercial, industrial, and service functions. The residential function is excluded because it serves only the local population of Basrah City itself. An attempt will be made to examine the regional importance of these functions according to the concept of "Economic Base" which divides them into basic and non-basic, the basic functions indicating the importance of the city in its region.

The Commercial Function

As shown from the historical development of Basrah City, the importance of the city has been based on the commercial function since the earliest stages of its history, whether as a port or as a regional centre. The importance of its commercial activities has been greatly affected by political issues, both local and foreign. In Chapter Six, the commercial function of Basrah Port was discussed. In the present section, the retail and wholesale functions performed by Basrah City to its local population and to those who live in its region, will be considered.

Wholesale Structure

Until the late 1960's, when the Iraqi private sector dominated the country's trade, both internal and external, the wholesale commercial activity of Basrah City was very extensive, so that the region of wholesale trade was extended beyond its immediate region (Basrah Province), to include the southern regions of Iraq, as well as other regions of the whole of Iraq in relation to the wholesaling of certain goods. Most of the wholesale establishments were in the CBD selling different goods, and most, if not all, of the wholesale traders were importers. This kind of commercial activity was the most important in the commercial structure of Basrah City.

Later, when foreign trade was nationalized, particularly since 1968, privately owned wholesale trade has been completely stopped and foreign trade and the wholesaling of goods have become state controlled. In addition, a new system of wholesale trade has been introduced by the state in the whole country according to which, goods are delivered by several state owned establishments, classified according to the kind of goods offered, and each of these has branches in all provinces of Iraq. The headquarters of each branch is located in the administrative centre of the province, such as Basrah City, though these establishments have to deliver their goods to the consumers through retail traders. The number of retail traders handling good differs from one establishment to another, and from province to province, based on various criteria such as the size of the population, socio economic structure of the given area and the kind of goods, as well as the individual decisions made by the officials who are responsible for these

establishments. As a result, the sphere of activity in wholesale goods offered by these establishments is determined by the administrative borders of each province, and all retail traders handling goods from these establishments have to receive goods from the headquarters. For this reason they have to travel from their work areas, both in the administrative centre and the rest of the province to the headquarters in that centre.

Of course, such a system has greatly reduced the importance of Basrah City in terms of dealing with wholesale, compared with its importance under the free trade system. On the other hand, because the above establishments are owned by the state, the returns coming from their operations form a part of the total returns of the central government, unlike the returns from the privately owned wholesale trade establishments, which provide individual income for the wholesale traders living in Basrah City itself. Therefore the income of the city has increased because this kind of economic activity brings in income from outside, particularly in the case of Basrah City, which was greatly involved with wholesale goods.

In Basrah City there are ten state owned establishments for wholesaling different goods as shown in Table 8.1. This Table shows that in 1980 the total number of the retail traders handling goods from these establishments in Basrah Region was 4,989, of which 59% were in Basrah City and the remaining 41% in the rest of the Region.

Most of the headquarters of the ten establishments are located in the CBD, particularly south of Al-Asbar creek and in Al-Kuwait street. The others are found on the main street

TABLE 8.1 : THE WHOLESALE ESTABLISHMENTS AND THEIR RETAIL TRADERS IN BASRAH REGION IN 1980

Establishment	Number of Retail Traders			Percentage of Basrah City %
	Basrah City	Basrah Region	Total	
1. Foodstuffs	1,297	1,334	2,631	49
2. Iraqi Stores	350	118	468	75
3. Iron and Wood	116	44	160	73
4. Machines & Apparatus	19	10	29	66
5. Cars and spare parts	61	20	81	75
6. Clocks, photo goods, and paper	72	29	101	71
7. Domestic goods, lighting and tyres	379	161	540	70
8. Cereal mills	461	289	750	61
8. Hand apparatus	66	23	89	74
10. Construction materials	98	42	140	70
Total	2,919	2,070	4,989	59

Source : The Directorate General of commercial control in Basrah Province, September 1980.

linking Old Basrah and Al-Ashar, except for the headquarters of the wholesaling of cereals and flour, which are attached to the silo and the state owned grain mill located between Al-Ashar and Maqil. This distribution is mainly attributed to various attractive qualities such as adequate buildings, large streets and accessibility.

Retail Structure

In Basrah City the number of retail establishments was 3,162 in 1970,⁽⁵⁷⁾ increasing to 4,689 in 1973,⁽⁵⁸⁾ and about 6,500 in 1980.* There have been no data available in recent years about the number of people working in these establishments except for what is contained in the 1977 Census. According to this census, the number of retail sellers was 6,787 in Basrah City, 57% of their total number in Basrah Region. However, the number of retail sellers formed about 6% of the total labour force in the city in 1977. In addition, the number of employees in the wholesale establishments is less than 1,000. Accordingly, the proportion of employees in the commercial function is small compared with those in other functions in Basrah City, or in the same function in other cities where the commercial activities are found to account for 40% or more of the urban labour force and thus to represent the principal source of urban employment.⁽⁵⁹⁾

However, retailing of different goods is one of the most important functions in the city in terms of economy, because it helps to bring in income from outside. In addition to goods sold to the local population in Basrah City itself, the retail establishments in the city sell a significant

* We have excluded the establishments found in Hurtha and Tanoma which were added to the total for Basrah City according to the first two references mentioned above. The 1980 figure was estimated by some government officials in addition to the field survey done by the author.

proportion of their goods to the people living in the Region. This will be considered in the section dealing with the regional relationships of Basrah City.

The main source of the different goods sold by retail traders in the city is thus the state owned wholesale establishments. In addition, however, other goods which are not available in these establishments can be obtained by retail traders from factories and other productive establishments in Iraq. This occurs particularly when retail traders are not licensed by the wholesale establishments above.

The distribution of retail establishments in Basrah City cannot be fully described, as the data are not available concerning the proportion of the city land used by all functions, including the commercial function. However, as shown in Figure 8.5, the commercial land use is small compared with the other land uses. It probably occupies an area not exceeding 4% of the total land used.

In Basrah City retail establishments are distributed according to different patterns which vary in location, type, number of establishments, sphere of influence, and the number of people served. Many studies have been made to classify the retail structure of a city. The classification of retail structure presented by Malcolm Proudfoot, can be applied to the present retail structure of Basrah City⁽⁶⁰⁾, except for one type, the principal business thoroughfare, which is still unadvanced, as Proudfoot shows in the city. However, five types of retail structure of Basrah City can be classified, similar to the classification which was

presented by Al-Khajatt, of commercial structure of both Baghdad City in Iraq and Tripoli in Libya.⁽⁶¹⁾ These five types are:

1 The central business district

This is located in Al-Ashar and includes the whole eastern half of this quarter on both sides of Al-Ashar creek, from Al-Khandaq in the north to the Al-Khura creek, particularly in the section that is close to the Shatt Al-Arab river in the south. From this river in the east, the CBD stretches westward beyond the government headquarters.

The CBD is found at the convergence of all transportation and traffic channels. This spot is the centre of Basrah City in terms of being most convenient to the greatest number of people, although it is not the geographical centre of the built-up area. It is the place associated with the highest land values, tall buildings, high-density land use, and the greatest concentration of people during daylight hours.⁽⁶²⁾ In the CBD there is about 40% of the total retail establishments in the whole city. In addition, many other different functions are concentrated in this centre, such as banks, hotels, restaurants, doctors and dentists, light industries, coffee shops, cinemas, bars, nightclubs and different offices of lawyers and transport agents, etc.

Although all these functions, including the retail, are distributed throughout the CBD, specialized land use can be clearly observed in certain sections within this centre in the form of separate markets or streets, which are all locally called "Suq" (market). These markets, for instance,

sell food (Al-Kishla), jewelry, textiles and dressmaking, and clothes. To the north of Al-Ashar creek the CBD consists of mixed buildings, old and new, including traditional suqes which are still standing, as in many other cities in the Middle East. To the south of that creek, where the CBD has greatly extended recently, most of the buildings are new and in better condition than those in the first part.

Although many buildings of three or four storeys were built in the CBD and Basrah City as a whole during the 1950's and 1960's, the significant vertical expansion has taken place since the early 1970's when a large number of multi-storey buildings (up to seven storeys) have been built throughout the city, particularly in the CBD. In this district such buildings are mainly concentrated on Kuwait Street since the municipality of Basrah does not allow buildings of less than four storeys on this street.

However, the CBD is continuing to develop, both in number of establishments and their qualities, and the area of land use. It is still the retail heart of Basrah City, though over the years it has become relatively less important. In addition, it performs goods and services not only to the city itself, but also to Basrah Region as a whole.

2. The Outlying Business Centres

These centres represent in miniature, a similar type of retail structure that characterizes the central business district. They possess a marked areal concentration where closely spaced retail stores do a volume of business exceeded only by those of the CBD. Here are found shopping goods outlets such as fresh food stores, clothing stores, furniture stores, shoe stores, jewelry stores, one or more large department stores such as a branch of the Iraqi Stores Establishment, and a mixture of convenience goods stores. In addition, these centres involve other functions, such as some simple light industries, doctors and dentists clinics, coffee shops, small restaurants, hairdressers, estate agent offices, etc.

In Basrah City, three outlying business centres have clearly developed which are found in Old Basrah, Al-Jamhoria and Al-Hadi quarters. All these quarters are large, high-density residential areas of low and limited income people. Therefore, because of the distance to the CBD and other transport problems, the presence of such centres here is necessary to meet the needs of the local population. However, these three centres are still not quite enough for their populations, who are still attracted by the CBD, because a wider range of goods and services at different qualities can be found there.

In these three centres there are about 32% of the total retail establishments in Basrah City, 17% in Old Basrah, 9% in Al-Jamhoria, and 6% in Al-Hadi. The historical development of these residential areas and their commercial centres, is an important factor affecting the relative importance of each of these centres in terms of number and level of retail

establishments. Accordingly, the centre in Old Basrah is the most important, followed by the Al-Jamhoria and Al-Hadi respectively.

3. The Neighbourhood Business Centres

This type of retail structure is represented by a small number of retail establishments found within the residential areas to supply the daily needs such as grocery stores, meat, fruit and vegetables and other convenience food supplies. These centres, at present, include other stores selling domestic goods, lighting, clocks and photographic equipment. In addition, there are also other functions in these centres such as dressmakers, bakeries and repair shops.

At present, in Basrah City there are several neighbourhood business centres such as Maqil, Huttein, Mawani, Al-Hussain, Ubullu, and Al-Asmai. In total, they account for 11% of the retail establishments of the city. Some of them have been set up by the government such as those in Maqil* and Ubullu, while the others are privately owned properties. It is expected that the centre in Al-Hussain quarter will be greatly developed, because this quarter is the largest and highest-density residential area, as well as being located at the western edge of the city.

4. The Principal Business Streets

This structural type consists of a certain number of retail establishments and some other functions, found alongside the principal streets in the city. They draw customers from within easy walking distances, particularly those who live in

* In Maqil the centres are : Maqil, Huttein and Al-Mawani.

the surrounding residential areas. In addition, because of the nature of such streets, they draw customers from other areas who have cars despite the fact that it is difficult to park in the CBD. Also, people who pass through these streets on their way home from work or as passengers, buy goods or obtain services from establishments here.

In Basrah City several business streets are found, Jazair and Towaisa being the most important. The proportion of retail establishments in this structural type is about 5% of the total number in the City.

5. The Isolated Stores

This structural type of retailing is represented by very small clusters of isolated stores and single isolated stores, distributed in different locations in Basrah City, as in other large cities. These stores are found within the residential areas, or on the main street, and there are many corner stores. There are grocery stores, fruit and vegetable stores, delicatessens and other stores supplying the needs for immediate convenience goods of residential families located within easy walking distance. This type forms about 12% of the total retail establishments in the city.

Industrial Function

In Chapter Five it was seen how the manufacturing industry in Basrah Region remained backward until the late 1960's, as a part of the general development process in Iraq. Until development planning started after 1958, industry continued to be concentrated in Baghdad Region, so that other regions, including Basrah Region, were less important in this field. However, in Basrah Region, except for the state owned

large modern factories already mentioned, the majority of industrial establishments, both large and small, are concentrated in Basrah City.

In 1979, in this city there were 69 large establishments employing 3,437 workers, which formed about 51% and 47% of the total large establishments and their labour force respectively in Basrah Region. Moreover, excluding the paints factory found in Zubair City and dates packing plants which work for only about 3 months, the proportions within the city were 77% and 92% respectively.

In the same year, in Basrah City, there were 2,188 small industrial establishments employing 4,651 workers which formed 61% and 59% of the total small establishments and their workers respectively in the Region.

By contrast, Baghdad City is the most important in terms of number of large and small industrial establishments and number of workers in them. Because the data about Baghdad City for 1979 are unavailable, the data for 1969 are employed for comparison,⁽⁶³⁾ despite the large gap between these two dates. In 1965, Baghdad City had 778 large establishments employing 56,210 workers, and 9,445 small establishments employing 21,905 workers. This means, in 1979 Basrah City had only 9% and 23% of the number of large and small establishments in Baghdad City in 1969, and it had only 6% and 21% of the total workers in these establishments respectively. Also, in Basrah City the number of employees in small establishments is 135% of their number in large establishments, while in Baghdad City the proportion is only 39%. This confirms that the small establishments dominate the industrial structure in Basrah City in terms of the number of employees, although the

total number of employees forms only about 7% of the total labour force in the city. However, although Basrah City is the most important settlement centre in the Region in the industrial sector, it is, in national terms, of minor importance in this field. This fact will be clearer when the industrial structure in this city, and the sphere of influence of its industries is considered.

Table 8.2 shows the small number of large industrial establishments and their employees in Basrah City, and that food industries dominate the industrial structure. This type of industry forms about 45% of the total establishments, and 65% of the total employees. The date-packing plants constitute about 27% of the food industry establishments with 47% of their employees, which shows that they form a significant section of the industry, in spite of operating for only one season. The food industries also deal in soft drinks, ice, dairy products, cereal milling, bread and other pastries.

The second most important group is the manufactured metal products, machinery and equipment industry, which form about 17% of the large establishments, with 16% of the employees. This group includes car repair shops, blacksmiths and plumbing work shops, in addition to two small factories, one of which makes metal tins and the other wire textiles, and a ship repair yard.

The other groups shown in Table 8.2 are of minor importance in terms of number of establishments and employees, and include several kinds of industries, such as carpentry and furniture works, clothing and floor tiles manufacturers. Also, there are

TABLE 8.2 INDUSTRIAL STRUCTURE OF LARGE ESTABLISHMENTS
IN BASRAH CITY AND REGION FOR 1979*

Industry	No. of Establishments **			No. of Employees		
	Region	City	%	Region	City	%
Foodstuffs, beverages & tobacco	94	31	33	4332	2235	52
Textiles, ready-made clothes and leather	4	1	100	155	155	100
Wood products & furniture	6	6	100	185	185	100
Paper, printing & publishing	1	1	100	8	8	100
Chemicals and oil products	8	5	63	1921	122	6
Non metallic mineral products	10	10	100	177	177	100
Basic metal industries	-	-	-	-	-	-
Manufactured metal products, machinery and equipment	13	12	92	578	555	96
Other manufactures and non classified	-	-	-	-	-	-
Grand Total	136	69	51	7356	3437	47

Source : Ministry of Planning (Iraq), Central Statistical Organization, Industrial Census for 1979 (Unpublished Data).

* This table excludes all large modern factories, which were discussed in chapter five, found in Basrah Region outside Basrah City.

** These establishments (large establishments) include only those employing 10 or more persons.

several small plants making some chemical products such as plastic, rubber and asphalt. All these industries form only 38% of the total large industrial establishments and 19% of the total employees in these establishments in the city.

The large industrial establishments vary in the extent of their sphere of influence. Generally, all large establishments in Basrah City make products which are sold to people who live in both the city and its region. In addition, some of these industries export some of their products to other regions in Iraq such as wire textiles and compressed bullrush sheet making industries. The date packing plants export all their production abroad. However, apart from three industries whose products are exported out of Basrah Region, the other industries sell most of their products to people who live in the city itself, because this city is the largest consumption market in terms of its size and relatively high standard of living compared with the rest of the region. In addition, because these industrial establishments are small in number and size, their production capacity is also small and thus, their returns are insignificant in the economic structure of Basrah City. However, more details about the regional industrial relationships of the city will be considered later.

Most of the small industrial establishments which employ less than 10 persons, are handicraft workshops dealing in, for example, dressmaking, vehicle and housing equipment repairs, furniture making, jewelry making and smithery, floor tiles manufacturing, and printing and publishing. In terms of the number of establishments, the vehicle and housing

equipment repairs is the most important, since these form 42% of the total small establishments in the city; this is followed by dressmaking at 19%, jewelry making and smithery 12%, food industries 11%, wood and furniture making 11%, while floor tiles making and chemical industries form only 5%, and printing and publishing 0.5%. In terms of the number of employees, the repair industries are also the most important, with 37% of the total employees in small establishments in the City, followed by food industries with 18%, dressmaking 15%, furniture making 11%, jewelry and smithery 11%, while the floor tiles and chemical industries, and printing and publishing industries are the least important, with 8%, and 9% respectively.

In fact, although all these small establishments serve the local people, in Basrah City, at the same time some people from the whole Region also benefit from their activities, while there is movement of population for different purposes between the Region and the City.

It should be noted that all the small industrial establishments in Basrah City belong to the private sector. The large industrial establishments are divided between the private sector and the public sector. In 1979 the public sector possessed 24 establishments, 35% of the total large establishments in the City, and employed 2,587 persons, 75% of the total employees in these establishments. By contrast, the number of privately owned large establishments was 45, 65% of the total number, employing only 850 persons, 25% of the employees in the large establishments.

Thus, although the number of publicly owned establishments

was small in comparison with the privately owned establishments, the former are the most important in terms of the number of employees. Amongst the more prominent of the former are the date packing plants, soft drinks factories and the cereal mill.

Spatial Distribution of Industries

The areas occupied by the industrial function in Basrah City form not more than 5% of the total land use in the city. Industries are distributed throughout the city, although clustering inevitably occurs because of a combination of both natural and contrived stimuli. These stimuli include : Proximity of markets and hence, customers, linkages with other industries or functions, accessibility of plant, availability of large and cheap lands, governmental control including zoning laws, and personal factors.

The high concentration of small industrial establishments in the CBD is attributed to the proximity of customers, where there are the greatest concentrations of people during daylight hours. In addition, linkages with other industries or functions found in the CBD contribute to this concentration. These factors have also led to small industrial establishments being located in the other areas of the commercial structure, particularly in the outlying business centres.

The location of the large industrial establishments on the highway linking Maqil and Al-Ashar is attributed to accessibility of plant, and availability of large and cheap land. Here, several plants are located such as two soft drinks factories, the largest cereal mill, dairies, and a liquorice-root packing plant (which was closed in the late 1970's).

The date packing plants are usually located on waterways as mentioned in Chapter Five. Therefore, those in Basrah City are located on creeks, particularly Al-Rubatt, Al-Khandaq, and Al-Khura. At these places, in addition to the waterway, large and cheap areas of land were available when these plants were set up.

Most of the vehicle repair industries are concentrated at the southern extreme of the city in the "industrial District". This area also includes other different types of industries such as those dealing in machinery and equipment, non metallic mineral products, wood products and furniture making. According to the zoning systems, mentioned previously, this area has been specially created, and those industries have been forced to move from other parts of the City to establish there.

The remaining industrial establishments are distributed in other different locations in the city affected by the factors mentioned earlier in the present section. However, at the southern edge of old Basrah there are many of these establishments, such as vehicle repair workshops, floor tile plants, wire textile, asphalt and concrete block factories, and smithery workshops. Here, accessibility and availability of large and cheap lands are the most important factors in determining this locality (see Fig. 8.5).

However, large cities are more complex than smaller ones and hence cannot be expected to reflect as exactly a standard pattern. Nevertheless, even in large cities, the manufacturing pattern probably can be resolved into identifiable site types. (64)

Service Functions

As Chapter Seven has shown, the services sector covers an extensive field, including many kinds of services which makes detailed analysis of many individual services beyond the scope of this thesis. In addition, the data is not available for all the services. Consequently, this section deals briefly only with the health, education and administration services and mentions a few other kinds of services such as hotels, restaurants, coffee shops, and some leisure services.

As the capital of its Region, Basrah is, of course, the headquarters of all administrative services in its Region, as well as certain administrative establishments of higher levels which are not found in the rest of the Region. According to the 1977 Census, the number of employees in the administrative services was 18,316 in Basrah City, forming 50% of the total in Basrah Region as a whole. Because all of them obtain their wages from the central treasury of the Iraqi state, these wages form an important part of the economic base of Basrah City. On the other hand, these administrative establishments offer their services to the people living in both Basrah City and its Region.

Most of these establishments, including the government headquarters, are located in Al-Ashar, particularly around the CBD. Another significant concentration of these is found on both sides of the highway linking Al-Ashar and Old Basrah. The remainder is mainly found on the highway linking Al-Ashar and Maqil, although a few scattered establishments are

distributed in other parts of the city, particularly in and around Old Basrah and Maqil.

The education services in Basrah Region were discussed in Chapter Seven. A high proportion of the educational establishments are concentrated in Basrah City, and all teacher training schools, commercial and technical schools, as well as the university are found there, according to the statistics for 1979/80.

In Basrah City there were 246 educational establishments of all types with 152,455 students, 5,017 teaching staff, and about 1,588 other workers. All these are publicly owned establishments which means that all staff and workers obtain their wages from the central treasury, and thus are basic employees in terms of the source of their wages.

All education establishments up to and including the level of secondary schools offer their services only to the people who live in Basrah City. Vocational education establishments cover in their activities not only the city but also its region, while the sphere of influence of Basrah University extends widely to include the country as a whole.

In fact, there is no clear pattern of distribution of the education establishments in the City. Kindergartens, primary and secondary schools are distributed throughout the city, related to the distribution and population density of the residential areas. The other education establishments are dispersed in different locations within the city according to the availability of adequate buildings.

The health establishments are also largely concentrated in Basrah City where there were 76, with 2,908 employees in the

city by 1980. These include different kinds of health establishments which are publicly owned, as discussed in Chapter Seven. Although these establishments offer their services free to the whole population, all their employees are basic, being paid by the State, as already mentioned. Hospitals, in particular, offer their services to the people who live in both Basrah City and its region, while the other health establishments are more local in their activities.

Like educational establishments, health establishments are distributed throughout Basrah City, with no clear distribution pattern. In fact the distribution of these establishments is related to that of the residential areas, except for the hospitals which are located at different places in the city, as shown in Figure 8.5.

As for privately owned health establishments, the single private hospital is located on the highway linking Old Basrah and Al-Ashar. The doctor clinics and pharmacies are mainly concentrated in Al-Ashar, particularly in the CBD which has about 80% of the city's total. All these establishments offer services to the people in both the city and its region.

Because Basrah City is the second largest city in Iraq, many other service functions have been developed. These include the 'entertainment and hotels' section catering for the leisure needs of residents and visitors. In 1980, the total number of establishments offering such services was 491 in Basrah City, including 214 restaurants, 114 hotels, 123 coffee shops, 30 bars, 5 cinemas and 5 cabarets. The number of employees in all of these establishments totalled 1,285 in that year.⁽⁶⁵⁾ All these are privately owned, except for one publicly owned restaurant and hotel. In addition, three

large high class modern hotels have been set up by the government, and were due to be opened by the end of 1980, on Chornish Street parallel to the Shatt Al-Arab river, between Al-Ashar creek and Al-Saraji creek. Except for these hotels, these establishments are mainly concentrated in Al-Ashar, particularly in the CBD, where about 40% of the total coffee shops, 60% of the restaurants, 85% of the hotels, 90% of the bars and all the cinemas and cabarets are to be found. The remainder are located in the other types of the commercial structure in the city.

However, the ratio of the basic activity offered by these establishments is high in general, and very high in particular establishments such as hotels and restaurants, because of the presence of a large number of visitors and foreigners in the city.

The Regional Relations Of Basrah City

Although Basrah City was originally built as a military town, it has developed as the main port of Iraq, and as a central services place for a large surrounding area, both of which have led to the expansion of the city to its present size and status. The commercial activity of Basrah Port has been discussed in detail in Chapter 6, where it was made clear that the whole country forms the hinterland for this port, while the whole world forms the sphere of its commercial activities, particularly its imports. In this section we are concerned with the relationships between Basrah City and the surrounding areas which it dominates as a city, rather than as a port.

The problem of the regional interpretation of the city, of defining and analysing the functions and limits of the city and the unifying relationships in the surrounding area, is one of disentangling the regional component and examining the multitude of tributary areas served by and serving the city. Each group of functions has its particular zone of influence. Consequently, many functional areas have no close relation with each other in their geographical boundaries - which are often difficult to define - or in their causes or characteristics. However, they all have a common denominator in their dependence on the city, although, presumably the degree of dependence varies. We may refer to that area which is functionally dependent on the city as the city-region. (66)

When the area of overall dominance of the city is analysed it is found to consist of a number of single-feature nodal regions : the commuting area, retail and wholesale trading areas, and many others. The single-feature regional boundaries that may be drawn around a city have a common centre - the city itself. The area of overall dominance of the city, too, is a continuous area. (67)

To delimit the regions of a city, the methods of obtaining the necessary information and of actually locating the boundaries are matters of prime importance. Many different methods are used for that purpose. However, in the case of Basrah City and its Region, only one method, field work, can be employed to obtain the necessary information from local people and different establishments in the Region, and from

certain establishments, particularly the public ones, in Basrah City itself. This is the method used by the author to draw the boundaries of the service regions of Basrah City as shown in Figure 8.9.

The regional relations of Basrah City are complex and multitudinous. However, they can fall into three categories : the administrative and social relations, the movement of population to and from the city, and the economic relations. The transport function of Basrah City and in its Region was discussed in detail in Chapter Six. In the following paragraphs these three categories will be considered.

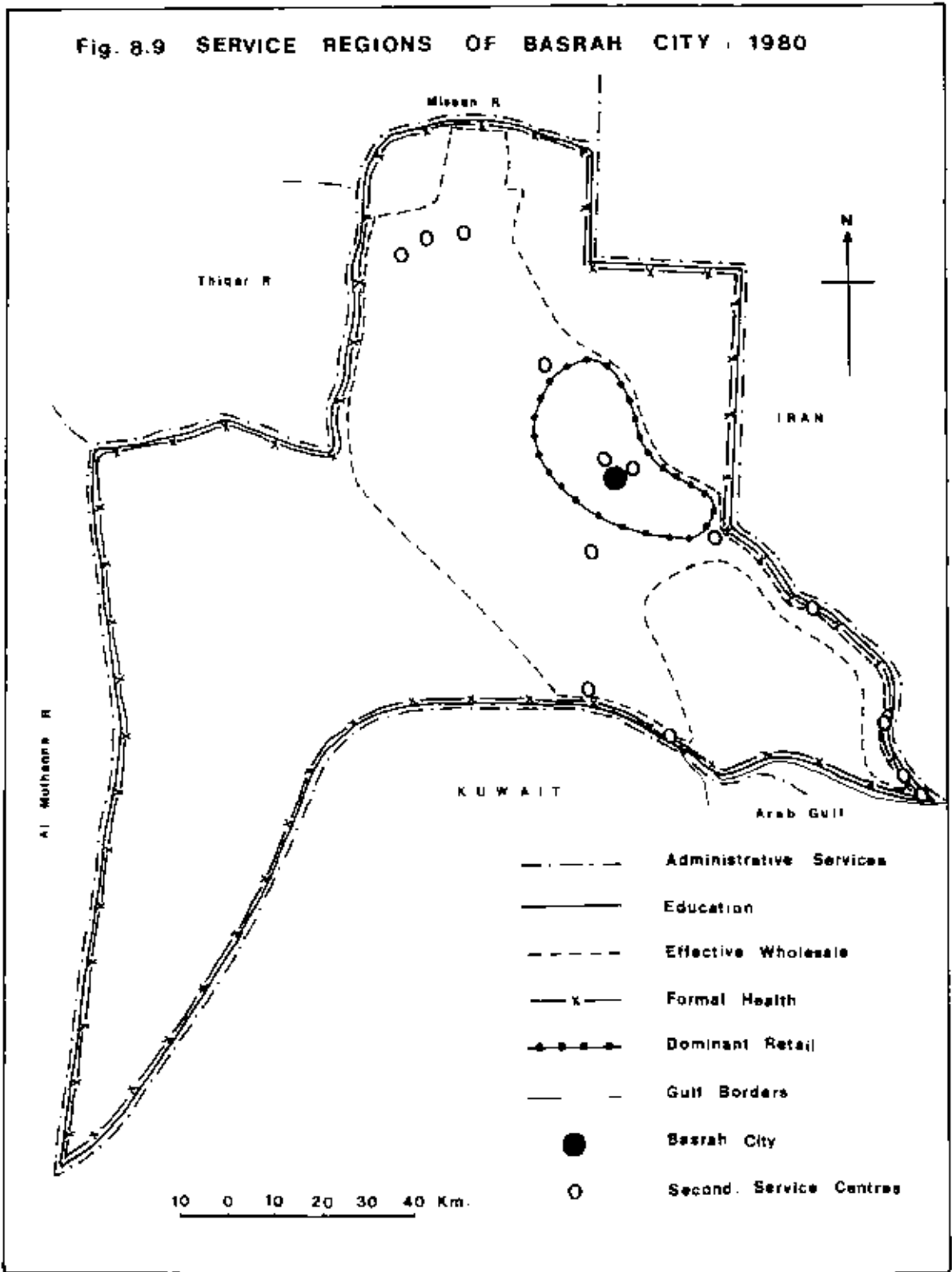
1. The Administrative and Social Relations

a. The Administrative Relations

The city is by definition the centre of administrative services offered to the whole population in its administrative tributary area, where both the city and this area form one local administrative unit. It is necessary for the administrative functions, represented by different governmental establishments, and have regional components, to be located in the city because these functions cannot be found in each settlement in the region. Therefore, the city is the connecting link between the population in the Region and the central government. However, there is a hierarchy in the level of the administrative functions of the city. Any centralised administrative system has a pyramidal nature, so that the administrative units are graded in importance and level of administration, culminating in the national capital, although this hierarchy differs from country to country.

In Iraq, the administrative system consists of four

Fig. 8.9 SERVICE REGIONS OF BASRAH CITY, 1980



levels of administrative units : Nahia, Qadha, Muhafadha, and the national capital. The country is divided into 18 Muhafadhas, each of which consists of Qadhas and Nahias which include many villages, and the number of these sub-units differs from one Muhafadha to another. Accordingly, Basrah Region (Muhafadha) consists of 7 Qadhas, 17 Nahias, and a large number of villages, as discussed in Chapter Three. The number of Nahias differs from Qadha to Qadha, and also the number of villages differs from Nahia to Nahia. However, all of these sub-units form the administrative region of Basrah City. The boundaries of this region, of course, have been drawn by the government for local administration considerations. Basrah City, the centre, dominates administratively the whole Region, and the region's population go to the city to obtain administrative services. Such journeys are often associated with other purposes as people buy goods from the city or obtain other services, in addition to the administrative services. Furthermore, this administrative system is associated with other public services offered by the central city to people in the whole administrative region, such as medical, educational, cultural and other services, as well as with the wholesale trade, which will be considered later.

b. The Medical Relations

The administrative unit also determines the region of the public medical sector for the central city which dominates it. Therefore, the sphere of Basrah City's influence in this field covers the whole of its administrative region. Accordingly, the city supplies all medical equipment to all medical establishments in the Region. Moreover, as discussed in

Chapter Seven, the people in the Region rely on their regional city - Basrah City - for specialist and hospital services, which are concentrated in this city. Although the data about the places from which people obtain medical services from hospitals in Basrah City is unavailable, it can be said that all hospitals in this city offer their services to the whole population, in both the city and its Region (see Fig.8.9).

In the private sector, because all specialised doctors are concentrated in Basrah City, everyone in the Region needing this kind of medical services, has to go to the city for that purpose. In addition, some people in the adjacent Regions such as Missan and Thiqr, obtain these specialist services from Basrah City, because they are much better than those in their Regions. It is interesting that the sphere of a town's influence through its doctors and hospitals is one of the most far-reaching. This is especially the case in developing countries. (68)

c. The Cultural Relations

Cities inevitably exercise a cultural role as it is not possible to establish facilities for advanced education in every village. As shown in Chapter Seven, primary schools are distributed throughout Basrah Region in both rural and urban areas, secondary schools are mainly sited in urban centres, while the sole university is located in Basrah City. In 1980, all the vocational schools and institutes were also located in this city, except the agricultural school which is found in Qurna Qadha.

Consequently, the whole administrative region of Basrah City is the catchment area for the vocational establishments of the city. At the same time, all such establishments found

in the region should be open to all students who are capable of profiting from them, including those who live in Basrah City, as happens in the agricultural school. The catchment area of Basrah University is not confined to Basrah's administrative region but covers the whole country. In addition, students from other Arab countries attend Basrah University.

On the other hand, Basrah City offers different educational services to its whole administrative region in terms of supplying equipment to all schools, appointing and distributing staff and employees, inspecting and supervising, and all other services related to education which is completely run by the state. In Iraq, education headquarters, except higher education, and related establishments, are found in the central city of the Muhafada, such as Basrah City.

There is another form of cultural relations between Basrah City and the Region. The television station which started broadcasting in Basrah City in 1967, broadcasts different programmes not only to the whole administrative region of the city, but also to large parts of the adjacent southern regions in Iraq, Missan and Thiqr, parts of Kuwait, and parts of Arabestan in south-western Iran.

The cinemas, social clubs, public libraries, and theatres found in Basrah City attract a considerable number of people from the Region, particularly on holidays and weekend visits. Because of the distance factor, of course, people who live in the closer settlements, particularly Tanoma and Hartha, are most able to profit from these services.

2. The Movement of Population

The depth of the relationship between Basrah City and its Region can be shown by the movement of population to and from the city. This is primarily expressed in permanent migration, and the daily journey to work.

Basrah City mainly owes the great increase of its population to the migration factor. It still attracts population from different regions of Iraq as it used to, particularly Missan and Thiqr, as well as from its own administrative region, for reasons discussed previously. Such migrants, being so numerous, display no particular spatial pattern but are distributed widely throughout the city. Recently, in Basrah Region, as in the whole country, the rural exodus has taken place towards urban areas. However, although all cities in the Region attract migrants from the surrounding rural areas, Basrah City is the most important in terms of the numbers of migrants and the sphere from which they come. In Basrah City, at present, there are permanent migrants who came from all sub-administrative units of Basrah Region, both rural and urban areas.

However, because of its attraction, the movement of permanent migrants towards Basrah City is dominant. Nevertheless, the outward movement that has taken place in the city, because of centrifugal forces, should also be considered in the relations between the city and its region, or, at least, between the city and its fringes, as already discussed in the present chapter. These fringes form the space into which the city extends because of the process of dispersion and urban growth and here the residential land use is the most important.

The Journey to Work

Beside the permanent movement of population, there is a daily movement of population between Basrah City and its Region, represented by the journey to work. This movement occurs not only because of the availability of employment opportunities in the city, but also because of certain problems such as the unavailability of housing or high rents in Basrah City. In addition, some people prefer to live in their original home rather than the city because of social or personal reasons. On the other hand, the distribution of urban functions in the Region, such as industry, mining, and services, force some of the employees who live in Basrah City to move daily from home in the city to work in the Region.

The daily movements to work increase in relation to the increase of the size and functional importance of the city. In addition, the availability and cost of transportation are the basic conditions affecting the increase of such movements. This daily movement between the city and its region has become an important factor in encouraging an increase in socio-economic homogeneity throughout the region, population mobility thus becoming one of the characteristics of the modern city region, which in Basrah, as elsewhere, in effect become one labour market. This movement is thus an effective factor in uniting the region, and in increasing the social and cultural links between the city and its region.

The daily movement to work has developed substantially in Iraq as a whole recently as a result of the great development in all sectors which has led to the availability of

employment opportunities in both rural and urban areas. The significant development of transportation has also contributed to increase this daily movement.

However, the data about the daily journey to work are unavailable not only in Basrah Region, but in Iraq as a whole. Nevertheless, a general picture about this feature can be given, based on the field survey done by the author and his personal knowledge.

The journey to work takes two forms : in-commuters, and out-commuters. Because of the availability of employment opportunities in Basrah City, the in-commuters, who come from the Region to work in the city, are more important numerically than the out-commuters. The number of in-commuters, of course, decreases with the increase of distance from Basrah City. Most of them come from the immediate surrounding areas, such as Tanoma and its neighbouring settlements, Hartha and its neighbouring areas, and the nearest villages south of Basrah City. Here, the bicycle is a common means of transport because of the short distance. In addition, cars are also used to travel between these areas and Basrah City. The second most important source areas of the in-commuters are : areas located between Hartha and the Paper Factory, areas between Basrah City and Abu-Al-Khasib City and Zubair City itself. Here, different kinds of vehicles, including the state owned buses are used in the daily movements. The third source areas are located beyond the second ones, along the highways linking Basrah City and the Region. Many people who live in Qurna City and the surrounding settlements travel

daily 75 km or more to work in Basrah City, and the journey takes them about one hour or more. Also, different kinds of vehicles including public buses are used. By contrast, the distance between Basrah City and the first source areas is about 10 km, while the distance to the second ones is between 10 and 25 km. The proportion of in-commuters can be estimated to be about 70%, 20%, and 10% of their total number respectively in the three source areas.

Although the out-commuters are numerically less important than the in-commuters, all of them are basic employees according to the concept of "Economic Base", because they bring in income from outside the city. Most of them work in the State owned productive establishments found in the Region, such as industrial and mining establishments which offer free transport facilities to their employees. Many teachers and officials who live in Basrah City and work in schools and government offices in the Region, have to move daily from home to work. Such journeys do not usually take more than one hour, and most of them work in the neighbouring settlements. The low cost of transport in Basrah Region and Iraq as a whole, as mentioned in Chapter 6, encourages the daily movement to increase.*

* In 1980, a 75 km journey only cost IF 120 by publicly owned bus, and IF 120-150 by privately owned van and coach.

3. The Economic Relations

The city exerts powerful influences on the social and economic structure of the territory around it. These influences are expressed in the types of rural land use and farm economy, in the nature of urban land uses, and in the social and economic structure of the villages and towns affected.⁽⁶⁹⁾ However, it can be said, that in spite of this regional role of the city, the economic relations and influences are mutual between Basrah City and its Region. These relations involve three aspects : agricultural, industrial, and commercial, each of which will now be considered.

b. The Agricultural Relations

It would seem that a city is, by definition, divorced from agriculture, leaving the neighbouring countryside to its fate in order to devote itself to industry and commerce. However, even when a city seems unrelated to the country, the country is still working for it. A large part of the countryside is organised to feed the city, and the city depends on its agricultural production.⁽⁷⁰⁾ In practice, Basrah Region does not supply Basrah City with all its food. In the past, Basrah Region produced different kinds of agricultural food, on which Basrah City was completely dependent to feed its population. At present, because of several problems facing the agricultural sector, as discussed in chapter four, Basrah City has to be supplied mainly by food from different sources found outside its Region, while little of its demand is supplied from the Region. Basrah Region supplies the city with some of its fresh vegetables such as

tomato, onion, garlic, watermelon, sweet melons and others. Dates are the sole fruit produced in the Region of which little is consumed in Basrah City. In the past the city was completely supplied with fresh milk, milk products, meat and fish from its Region. At present, it is mainly supplied with these products from outside its Region, and only partly from the Region, for reasons discussed in Chapter 4.

In general, Basrah Region has become an extensive consumption market for agricultural products. This situation has increased the importance of Basrah City's regional role as the commercial centre, through which different kinds of food are imported, and then delivered to the people in the Region. This function will be considered in the section concerned with the commercial relations.

Basrah City exerts a significant influence on the agricultural uses of the land around it. All cultivated lands around this city produce some kinds of vegetables to supply part of the city's needs, in spite of the continued decline in their production, as mentioned previously. On the other hand, because of the expansion of Basrah City outward, large areas of its rural fringes have been taken over for urban uses. For the same reason, the existing rural areas around the city are likely to be used sooner or later for urban uses, and therefore their values have risen and will rise further. Such influences are normally most intense near the city and decrease outwards from it.

b. The Industrial Relations

These relations between Basrah City and its Region take three forms. The presence of industries in both the

City and the Region, beside the development of cheap and rapid transport, makes the labour mobility one of the significant relations between them in this field. The City forms a labour market for its Region, and the Region performs the same function for its central City, as discussed previously.

Industries in Basrah City are not supplied with raw materials from Basrah Region, except the dates for date-packing plants, bulrush for compressed bulrush sheet factory, and paper for the paper printing and publishing industry. Equally, Basrah City supplies no raw materials to the industries in the Region.

The industrial establishments in Basrah City sell some of their products and services to the people who live in Basrah Region, as discussed previously, while the City buys from its Region only paper, bricks, paints from the factory in Zubair City, and heating and cooking equipment from the factory located on the highway between Basrah City and Abu Al-Khasib City.

c. The Commercial Relations

These are the most important economic relations between the city and its region, where the city is the centre of collection and distribution of goods. Products from the region are collected in the central city to be exported, while the imported goods are distributed by the city to its region. The distribution of goods is the most important aspect of the commercial activity of Basrah City, which produces or imports goods to be distributed to the people who live in the Region, through both retail and wholesale trades.

As shown in the section concerned with the commercial function, the sphere of Basrah City's influence in wholesale trade has been confined to the boundaries of the administrative region, because all wholesale trade in Iraq has been controlled by the state. Therefore, the administrative boundaries themselves are the same as those for the wholesale trade region of Basrah City, as shown in Figure 8.9.

The sphere of influence of retail trade is determined by the distance from the city, cost of transport, and the size of the city. According to Reilly's Law of Retail Gravitation, the distance and size of city are the two factors which determine the retail trade area. (71) In Basrah Region, however, such a law can not be applied because of the local conditions.* Thus, the field survey, mentioned previously, provides the most suitable approach to determine the retail trade region of Basrah City, although the distance and size of the city remain the two effective factors in this field.

As the most important central service place in the hierarchy of size and functions in the Region, Basrah's retail trade attracts people not only from the immediate surrounding areas, but from most, if not all of its administrative region. This is because in addition to the presence of extensive markets in Basrah City, it has retail trade establishments of higher levels than those in any other cities in the Region in terms of quality and quantity of goods sold. In addition, in Basrah City some kinds of goods sold are not available in the rest of the Region. These factors force people in the Region to buy goods like these which they need

* These local conditions include three main factors : the nature of irregular distribution of population and transport facilities, and the availability of goods sold in the competing secondary service centres.

from Basrah City. Whether shopping expeditions to the city take place daily or less frequently will depend on the distance factor, times and cost of transport and the type of goods required. In general, based on the field survey done by the author the daily journey areas extend about 35 km northward from Basrah City to include all settlements located along the Basrah-Baghdad highway beyond the paper factory, and about 15 km southward to include all settlements on both sides of the Basrah-Abu Al-Khasib highway. On the left bank of the Shatt Al-Arab river, the people who live in all settlements within the area determined by the boundaries of retail trade, as shown in Figure 8.9, can go shopping daily in Basrah City. Westward there is Zubair City, the second largest city in the Region, 15 km from Basrah City, and there are no settlements between these two cities, except Shiaba which is nearest to Zubair.* Thus, daily shopping in Basrah City is limited in this direction, although some people who live in Shiaba and work in the public sector, do make this journey transported free by special public vehicles.

In this study, foodstuffs have been used as the main base for the definition of the retail trade region of Basrah City. With the exception of Tanoma and Hartha, the field survey has shown that all settlements within this region depend heavily on Basrah for foodstuffs of different levels. This is because of the general lack of retail food outlets in all the other settlements. Although foodstuffs

* According to Reilly's Law, the breaking points from Basrah City are 41 km to the north, 17 km to the south and 11 km to the west.

are available in Tanoma and Hartha, supplying part of the local demand, people living in these two cities (which are in fact suburban) buy most of their foodstuffs in Basrah. In addition, neither Tanoma nor Hartha has any sphere of influence in retail trade beyond their restricted urban areas. The field survey has also shown that all settlements found within the dominant retail trade of Basrah depend heavily on this city for goods of all orders, as well as foodstuffs. Beyond this region some people living throughout the administrative region of Basrah buy such higher order goods in this city, as ready-made clothes and textiles, shoes, furniture, jewelry, cars and spare parts, and house construction materials such as doors, windows and floor tiles.

Figure 8.9 shows that the boundaries of the retail trade region of Basrah City are about 5 km from Abu Al-Khasib City, and about 10 km from Diarre City, as well as including both Hartha City and Tanoma City. This feature can be attributed to the powerful competition of Basrah City with these cities.

On the other hand, Basrah City plays another regional commercial role, when it exports some of the Region's agricultural products, to other regions

of Iraq or abroad, such as dates, tomato, onion and garlic. This commercial activity takes place in official specialized establishments, whose headquarters are located in Basrah City, such as the Dates Marketing Establishment, and the Agricultural Marketing Establishment.

Conclusion

Despite Basrah City being built and developed as a traditional Arab and Islamic city in its internal structure during the early and middle stages of its history, it has been greatly affected by Western urbanization trends over the past two centuries. The most significant changes in Basrah City's structure have taken place in the present century, particularly since the late 1950's, so that the traditional Arab and Islamic structure of Basrah has disappeared, except for a few remnants which are represented by the 'Eastern' design of old houses, narrow and unplanned lanes, and some Mosques, restricted to small areas within Al-Ashar and Old Basrah districts.

However, the land-use pattern of Basrah City is generally different from the models which have been advanced for Western cities, and it has special characteristics.

This is because of many factors such as the historical development, the socio-economic factors within the city, topography and other peculiar circumstances of the city's site, geographical location and regional relationships, and a series of decisions made by the local and central governments. The successive plans introduced for Basrah City by the local authorities since the 1950's, have been the most important factors controlling the growth and land-use pattern of the city.

Basrah City, despite its initial origin as a military camp in 14 A.H/635 A.D. has developed as an important commercial centre not only in Iraq, but also in the whole Arab Gulf area. In addition, it had played an important political and administrative role in both Iraq and the Gulf area, during different periods from its initial origin up to the early 20th century. This importance of Basrah can be mainly attributed to its locational characteristics which have clearly overridden its peripheral national location. Despite the huge political and economic changes which have taken place in the Gulf area over the last few decades, this city still maintains its importance as the second largest city and the main port in Iraq, and one of the most important ports and cities in the Arab Gulf.

Such a city inevitably imposes its influence in different socio-economic relations in a large surrounding area. Accordingly, in Basrah City the functional structure has greatly developed, so much so that it has had nearly half the total number of the Region's population which indicates the great growth of the residential functions in the city, and most of Basrah Region's commercial, urban industrial, and service establishments have been concentrated in this city. Thus, Basrah has been a key central city playing a crucial regional role. As a part of its regional role, Basrah City performs and imposes different functions for the population who live in its Region. However, the sphere of Basrah's influence has been essentially affected by the internal policies introduced by the central government in the country. Since the late 1960's, when the wholesale trade has been run by the state, as all other Muhafadha centres in Iraq, the sphere of Basrah's influence in wholesale trade has been confined to the current administrative limits of Basrah Muhafadha, as shown in Figure 8.9. Previously, it extended beyond these limits not only to include the southern regions of Iraq, but also to include the whole country in wholesaling many imported goods. This means that under the system of free trade, both internal and external, Basrah City can play a key role in wholesale trade in southern Iraq as well as in

the whole country, in a way that is more significant than under a controlled trade system. The fact that all Iraqi ports are in Basrah Region and that Basrah City itself is the country's main port, provides the city with great potential to play such a commercial role.

Because of government policy, the sphere of all other formal functions performed by Basrah City such as the social services is confined to the current borders of its administrative region as in other Muhafadha centres. Exceptionally, Basrah University has a national function being open to students from the whole of Iraq, as well as to some non Iraqi Arab students.

The catchment area of some informal functions offered by Basrah City not only covers the whole administrative region of Basrah, but also covers the neighbouring regions such as Missan and Thiqr. For instance, all specialized doctors in Basrah Region are in the city, and these medical services are much better than those in the regions, which is why the catchment area of this function extends beyond Basrah's administrative region.

The depth of the relationships between Basrah City and its Region can be shown by the movement of population to and from the City. Basrah, because of its attraction, still attracts population from different regions of Iraq as it used to, particularly from Missan and Thiqr, as well as from all sub-administrative units of Basrah Region, both rural and urban areas. This permanent movement of migrants towards Basrah is

dominant, although the outward movement has recently increased within the city. This outward movement of population, particularly between the city and its fringes, can be attributed to the process of dispersion and urban growth.

The daily journey to work has been a significant movement of population between Basrah City and its Region. It has become an important factor in encouraging an increase in socio-economic homogeneity throughout the Region, which, thus, becomes one labour market. Because of the availability of employment opportunities in Basrah City, the in-commuters, who come from the Region to work in the city, are more important numerically than the out-commuters. The number of in-commuters decreases with the increase of distance from the City, although this movement extends for more than 80 km in some directions. The recent development of cheap and rapid transport in Basrah Region, has been the basic factor increasing the daily movement of population in the Region.

As, by definition, the most important central service place in the hierarchy of size and function in the Region, Basrah's retail trade attracts people not only from the immediate surrounding areas, but from most, if not all, of its administrative region. This seems to be true regardless of the extent of people's dependence on this city for their shopping, or whether they shop daily or less frequently. However, there is a definite catchment area for Basrah's retail trade, as shown in Figure 8.11, in which people are essentially dependent on this city to meet their need for goods and services of all orders.

Because of the problems facing the agricultural sector, little of Basrah's demand for some kinds of fresh vegetables, dates, fresh milk, milk products, meat, and fish, is supplied from the Region. In fact, Basrah Region has become an extensive consumption market for agricultural products, which are mostly from abroad, imported and distributed by Basrah City to the Region. This situation has increased the importance of the regional role of this city as a commercial centre, making outlying areas, formerly enjoying a high degree of local self-sufficiency, increasingly dependent on Basrah as the source of their food and thereby reversing the traditional dependence of the urban area on its rural hinterland for its food supply.

The rapid growth of an important central city such as Basrah does not depend only on its local resources, but also on those of its region. So, the increasing economic importance of Basrah Region in recent years, particularly in industry, the oil and gas sectors, and the ports' activities, has effectively increased the importance of the regional role of Basrah City in different socio-economic relations, and, thus, contributed greatly to the continuing growth of this city.

Chapter 8 - References

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CONCLUSION

As has been seen throughout this thesis, Basrah Region and Iraq as a whole have witnessed great socio-economic changes over the past thirty years. Above all, this can be attributed to the oil revenues which have increased so significantly since the early 1950's, being the main source of national income. Thus, the investments allocated to the increasingly ambitious development plans which have been introduced by the state have become increasingly reliant on oil revenues. Since the early 1970's, because of the great increase in these revenues the potential for socio-economic changes has greatly accelerated, particularly in Basrah Region, so much so that this Region has become the most important economic region in the whole country. The particular importance of Basrah Region, at present, can be attributed to two crucial physical characteristics of the Region: firstly, the Region's location on the Arab Gulf, Iraq's only coastal area. This means that Basrah Region embraces all Iraq's ports, and has thus, at times of national economic expansion, experienced all the consequences of being, in effect, the nation's entrepot. Secondly, the Region's geological structure has many formations which contain more than 60% of the total reserves of both crude oil and natural gas in the country. So, because Basrah Region is so rich in both location and resources, it has been the most important region in terms of oil production and exports. Also, for the same reasons, the emphasis for the establishment of modern industries has been on this region, including several large publicly owned factories. Moreover, the large marshlands in Basrah Region,

which are important areas of abundant natural vegetation, provide raw material for some industries, particularly reed for the paper industry. Consequently, this region is the most important industrial region in the whole country, including basic industries such as iron and steel, chemicals and petrochemicals, refining and paper production and processing.

The oil revenues which have risen greatly, particularly since 1973, have contributed to the execution of great comprehensive development programmes throughout the country, programmes which require different materials to be imported. As an additional result of these development programmes, the income and standard of living of individuals have risen, leading to an increased demand for different commodities, most of which are also imported. Consequently, the remarkable increase in the activity of Iraqi ports continued until the second half of 1980, when the war started. Thus, the capacity of the existing ports, Basrah and Um-Qassir, increased greatly, and new ports and wharves were created in Basrah Region (Fig.6.1) to meet the great increase in imports. Also, because of the increased demand for crude oil in the 1970's Iraqi oil exports substantially rose during that decade and led to an increase in the capacity of Iraqi oil terminals on the Arab Gulf, including expanding the existing Al-Amaya port and building Al-Amiq port, both of which are found in the territorial waters of Iraq. However, in spite of the enormous increase in the capacity of Iraqi goods ports and oil terminals during the 1970's, the 1980 figures show that this was still not sufficient to cope with the increase in foreign trade and oil exports. So, in 1980, for instance, a high proportion of Iraqi imports arrived through ports in

Kuwait, Jordan and Turkey; and a significant proportion of crude oil was exported through Turkish and Syrian oil terminals. Such a situation, of course, is usually affected by the political relations between Iraq and these countries, as well as by the higher cost of transport through foreign ports. These facts confirm the great importance of ports in Basrah Region, and emphasise the need to develop their capacity to levels which can meet the increased needs of Iraqi foreign trade.

The developments of the above sectors, which have raised the economic importance of Basrah Region, have also greatly increased the employment opportunities in the Region. Accordingly, this Region has been the second most important in-migration region (after Baghdad Region) in the country. These developments have influenced the labour movement and attracted considerable numbers of people particularly from rural areas, because of the continuing inadequate conditions in these areas. Basrah Region attracts migrants from different regions of Iraq, but mostly from the southern regions, particularly Missan and Thiqr, where the socio-economic standard of the cultivators is the lowest in the country. Until recently, Basrah City the main port of Iraq attracted the majority of these migrants coming to Basrah Region, as well as the migrants from all its own administrative region. This is because of the employment opportunities which were mainly concentrated in this city, as were and still are the best social services in the Region. So, the sphere of Basrah City's influence in the movement of population, which is primarily expressed in permanent migration, not only includes the whole administrative region of Basrah, but also includes

other regions, particularly Missan and Thiqr. Thus, all these facts explain why Basrah City has been the second largest city in the whole country. Recently, as a result of the economic developments which have taken place throughout Basrah Region, some other areas have attracted migrants. The Al-Zubair area has been a significant in-migration area in the Region. This is because Al-Zubair includes the most important industrial and oil establishments in both Basrah Region and Iraq, as well as ports and military establishments. Foreign immigration to Iraq has recently become a significant feature. This is because the Iraqi population is not able to supply the whole demand created by the rapid increase in employment opportunities throughout the country. So, foreign workers have become a significant resource to supply what remains. Egyptians firstly, and Indians, Pakistanis and Bangladeshis secondly, form the majority of the foreign employees in Iraq. It is believed that there are more than a million Egyptian workers in Iraq at present. Of course, it is hardly surprising that a significant proportion of foreign migrants is found in Basrah Region, given what has already been stated concerning its rapid growth and pre-eminence within the country's industrial sector.

Accordingly, migration, both internal and foreign, has been the main factor affecting population features in the Region. So, in the last population census of 1977, in Basrah Region the average annual population growth rate, the proportion of urban population and the preponderance of males were higher than the national figures (see Chapter 2).

The rapid growth of the Region's population, as a result of migration as well as natural increase, has imposed a great pressure on the services sector, particularly the social services. In Chapter Seven, which deals with health and education, it has been shown that, despite the great developments which have taken place recently in both of these directions, they are still suffering from a remarkable shortage of establishments, buildings, staff, and equipment. Such services are still unevenly distributed, and strongly concentrated in urban areas, particularly in Basrah City. The concentration and improvement of services in urban areas, particularly the large cities, coupled with the continuing inadequate supply or total lack of services in rural areas and small towns, have all been significant factors contributing to the persistence of the migration towards cities. So, in the comprehensive regional development it must be a very high priority to improve greatly the balance of the services sector throughout the Region, and to advance the overall standard to a level at which services, particularly social services, are available for all people.

The rapid developments which have recently taken place in different sectors in Iraq, have greatly increased the needs for transport facilities. Recognizing the crucial infrastructural role of an efficient transport system, the state has recently taken an increasing interest in developing its internal transport. Despite this, transport of all kinds in Basrah Region, as in Iraq as a whole is still suffering from several problems. Congestion is the most serious problem which will continue if transport development remains at its

present relative level compared with the higher level of the increased needs for transport facilities. This problem is more serious in Basrah Region than in other regions of Iraq (see Chapter 6), simply because of the concentrated growth which has taken place than for the reasons already summarised. Consequently, this problem facing transport in Basrah Region affects commercial and economic movement not only in the Region, but also in the whole country. So, transport development and policy needs to evolve in two ways : firstly, within the Region, and secondly, between the Region and the rest of Iraq, and indeed, abroad. Recently, the investment emphasis has been mainly on the roads, and some developments in road and bridge building has taken place in the Region. However, the emphasis has been on increasing the length of the road networks rather than the quality of the main arteries. At the same time, the number of vehicles on roads has greatly increased at rates which considerably exceed improvements in road capacity. In fact, the developments which have taken place in road and bridge building in Basrah Region, are relatively insignificant compared to the great economic importance of the Region in the whole country.

Moreover, in Basrah Region, the daily movement of population has greatly increased in recent years. This can be attributed to the increased employment opportunities throughout the Region; the recent development in transport on the roads in the Region in terms of number of vehicles and length of the roads, and cheap transport. So, the daily journey to work has become a significant aspect of population movement throughout the Region. This movement

has become an important factor in encouraging an increase in socio-economic homogeneity throughout the Region, which, thus, becomes one labour market and, functionally as well as administratively, one unit.

The impact of the developments in different sectors in Iraq has been negatively reflected on the agricultural sector which, as a result, has become the weakest one. This has had a greater impact in Basrah Region than in other regions of Iraq because of the rapid economic developments which have taken place in the Region. This sector is still suffering from several problems such as soil salinity, the irregular discharge of surface water and other physical problems (see Chapter 1), the primitive and traditional techniques used, the uneducated labour force, and inadequate conditions in the rural areas. All of these problems and others, coupled with the employment opportunities and relatively better conditions in the non-agricultural sectors, have encouraged most of the labour force to shift from agricultural activities to non-agricultural ones. This situation includes not only the crop production sector, but also fishing and stock rearing sectors. In addition to these general problems facing these aspects of the primary sector, fishing also suffers from water pollution which has seriously increased in recent years because, above all, of the great developments in the industrial sector; whilst stock rearing also suffers from a shortage of animal fodder. This shortage is caused by the inadequate physical environmental conditions, and the poor agricultural potential. Moreover, all of these three sectors are still suffering from the unavailability of

adequate transport and storage facilities. Consequently, agriculture, which was once the main sector in Basrah Region and in the whole country in terms of labour force and national income, has become of minor importance. Also, until recently, Basrah Region enjoyed a high degree of local self-sufficiency in the agricultural sector, particularly in vegetable production, fishing and stock rearing. Recently, the Region has become increasingly dependent on food from other regions of Iraq and abroad. In order to develop the agricultural sector in the Region, intensive efforts need to be made to solve all the problems facing this sector, and to exploit the available local potential.

Basrah Region's population distribution is the result of the physical, socio-economic and governmental factors in the Region. Before the recent economic developments took place in the Region, and when agriculture was the main activity for the majority of the population, the physical factors, particularly water resources, topography and soil, strongly affected the population distribution throughout the Region, as shown in Figure 3.1. This explains why more than 80% of the total population of the Region live in the river levee areas which occupy only some 13% of the Region's total area, while the rest of the population are distributed between the marshlands and Al-Zubair area. The above physical conditions in the river levee areas are better than those in other areas of the Region. Recently, the creation of many important economic establishments such as ports and factories in certain areas in the Region, has attracted a significant proportion of the population to live in these areas. Although some of these establishments are also found on the river levees, most of

them are in the Al-Zubair area. This area, as a result, has become the second most important in-migration area in the Region. Nevertheless, in the 1977 census, the total population in the Al-Zubair area formed only some 12% of the Region's total population while this area occupies about 66% of the Region. However, the population growth and distribution in Al-Zubair will basically rely on future developments in the non-agricultural sectors, particularly industry. In the marshlands such growth and distribution will continue at its present level unless these marshes are drained, as proposed by some authorities in Iraq; non-agricultural activities are introduced, such as industry; and oil operations greatly expanded as all the marshlands in the Region are oilfields (see Fig. 1.1 and Fig. 1.5). The present non-oil resources and traditional and primitive activities found in the marshlands are insignificant compared with the great economic importance of oil operations in this area, which is one of the most important in terms of oil reserves in the whole country. It is expected that significant socio-economic changes will take place in the marshlands of Basrah Region, one of which will be population distribution and size distribution of settlements in these areas. Here, it should be said that oil operations do not require comprehensive drainage of the marshes; massive drainage schemes would wipe out significant natural resources in the Region, such as fish and vegetation, as well as tomato production. So, a balanced policy should be introduced to protect these resources, and to expand oil operations at the same time. To achieve the first aim, effective efforts should be made to keep the

marshlands. These must be also arranged and controlled in order to become more significant.

In Basrah Region, as in all Iraqi regions, there is a primate city beside several small towns and a large number of villages, settlements of intermediate size being generally absent. In 1977 Basrah City had a population of some 452,000, 45% of the Region's total population, seven times more than that of the second city (Zubair 67,000), while all other settlements in the Region were below 26,000. In fact, in Basrah Region the spatial distribution, size distribution and functional structure of settlements are irregular, being affected by various local factors. So, all these aspects need to be controlled and planned by the government, in order to create a more regular situation.

The increasing absolute and relative economic importance of Basrah Region has effectively increased the importance of the regional role of Basrah City in different socio-economic relations, and, thus, contributed greatly to the continuing growth of this city. So, in Basrah City the functional structure has greatly developed, so much so that most of Basrah Region's commercial, urban industrial and services establishments have been concentrated in this city. Thus, it is the capital and a key central city in Basrah Region, playing a crucial regional role, performing and imposing different functions for the population who live in this Region.

Until recently, Basrah, besides being the main port in Iraq, had maintained its importance as a key commercial city in the country. Before the late 1960's, when the foreign and wholesale trade in Iraq was run by the private

sector, the sphere of Basrah's influence in wholesale trade extended to include the whole country in wholesaling many imported goods. Since that time, this sphere has been confined only to the current administrative limits of Basrah Muhafadha as all other Muhafadhas in the whole of Iraq. This means that Basrah, because of its location, can play a key role in wholesale trade in southern Iraq as well as in the whole country, in a way that is more significant than under a controlled trade system. Moreover, as discussed in Chapter 8, the sphere of influence of all formal functions offered by Basrah City are confined to the administrative limits of Basrah, except for Basrah University which has a national function as planned by the state. So, such imposed functional spheres do not represent the actual sphere of influence of Basrah's regional functions. This is because the administrative limits, which are correlated with many formal functions offered by Basrah City, are not very effective in terms of services offered for people. A glance at Figure 3.1 will explain to what extent these limits are appropriate for the population distribution throughout the Region. In addition to the fact that Basrah Muhafadha is bordered by Iran, the Gulf and Kuwait in the east and south, large unpopulated areas are found in the Region, including the whole of the southwestern parts and the perennial marshlands. Also, there is a sharp break near these limits within populated areas in the northern and western parts of the Muhafadha. Here, the people who live close to and beyond these limits, want their areas to be part of Basrah Muhafadha for socio-economic reasons. Nevertheless, the relatively long distance

between Basrah City and significant populated areas, particularly those in the northern part (Qurna Qadha), and to a lesser extent those in the southern part, makes it difficult to provide adequate Basrah City-based services for all people who live in these areas. Accordingly, if any further changes occur in Basrah's administrative borders, such facts should be taken into consideration to make these borders more realistic and effective for all people in the Region.

To achieve a comprehensive development for Basrah Region, which is delimited by the current administrative limits of Basrah Muhafadha, effective planning measures must be taken to solve the existing problems and to exploit the available potential in the Region. So, such a development needs to take place in two ways : firstly, developing the national economic activities found in Basrah Region, such as ports, industries and oil and natural gas operations; secondly, developing the backward aspects of the regional sectors in the Region such as transport, the social services and the agricultural sector. Although the former depends upon decisions made by the central government, the development of such key economic activities improves not only the national economy, but also of course, the Region's economy and its other sectors. The regional development in Basrah Region should give priority to the improvement of living conditions in small towns and rural areas. This policy could greatly reduce or control the outward movement of population from small towns and rural areas where at present the inadequate and unevenly distributed services of all kinds pose the most serious regional planning problems in the Region.

The regional planning policy must also emphasise agricultural development in the Region. Such a development should include: creating drainage projects to solve the soil salinity problem; more effective control of the discharge of surface water including building dams and irrigation canals; replacing the primitive and traditional techniques used in this sector by modern techniques. Financial and technical facilities offered by the government to workers in the agricultural sector are also necessary, since the majority of these people are unable to obtain such facilities out of their own resources. In addition, the solution to problems such as water pollution facing fishing and a shortage of animal fodder facing stock rearing, should be integrated with the agricultural development policy. The results of such a policy would not only involve the modernization of an important economic sector such as agriculture in Basrah Region, but would also reduce or prevent the shifting of the labour force from this sector, and, thus, reduce the outward movement of population from rural areas.

To achieve a comprehensive regional development, and to facilitate the increasing movement of people and goods throughout Basrah Region, great changes must take place in the Region's transport sector. Such changes have to include development in transport capacity and services (further detailed proposals for this sector are discussed in Chapter 6).

The irregular system of settlements in Basrah Region must be treated by effective urban and rural planning policy. Besides the inadequate living conditions in small towns and

rural settlements, the large cities such as Basrah are also suffering from increased socio-economic problems as a result of their rapid growth. To solve such a problem, strong measures must be taken in a long-term regional development policy. The improvement of the standard of living and the social services in small towns and rural areas of the Region would not only cure the causes of migration and keep people in their own settlements, but also encourage a number of migrant families, particularly in Basrah City to go back to their home places. To redistribute the population throughout Basrah Region in order to encourage growth in the small towns and rural settlements, creating employment opportunities in such settlements is thus a significant priority. This could be part of a general decentralization of functions and economic activities at the regional level of development.

Decentralization should be implemented in Basrah Region in order to reduce the centrality and supremacy of Basrah City. This policy would not only lead to a reduction in the great pressure on functions offered by Basrah City, but also to the growth of other settlements in the Region, and would solve the people's problems created by over-centralization. One solution might involve further formal Regional changes. For instance the proposal introduced by the central government a few years ago. This suggested separating the northern part of Basrah Muhafadha and creating a new Muhafadha with Qurna City as the provincial capital. Such a proposal is both reasonable and necessary, seeking to reduce the centrality of Basrah City, for reasons already mentioned, and to develop many settlements in the new Muhafadha; some of these would be

administrative centres and others would have a higher administrative function. In both cases, therefore, such settlements and neighbouring settlements would need to be covered by the municipal services in proportion to the increase in new functions and socio-economic establishments. Qurna, which is the key city in the northern part of the present Basrah Region, could then grow rapidly and play a crucial regional role as an important central city, in a way that is more significant than at present under Basrah's administrative control.

However, whether Basrah Region remains at its current administrative limits or not, a comprehensive development for the whole Region in both its urban and rural areas must be achieved. This policy should give first priority to the rural areas and small towns to accelerate the improvement of the standard of living and the social services, to a level at which all people in these areas are enjoying adequate living conditions and have no need to change their homes.

Finally, the greater degree of integration between cities and their surrounding areas, which has recently taken place in Iraq has increased the relative importance of the city region as a significant region appropriate for geographic analysis. In practice, however, there are several limitations which make it difficult to employ such a region either as a unit for regional planning, or as an administrative unit. Firstly, a city region is invisible and unstable, changing over time, so it is impossible to determine anything other than the hypothetical borders of such regions. Secondly, the

processes of urbanization in Iraq are still at a stage in which although rapid urban growth is occurring in certain key cities, including Basrah, such rates of growth and such degrees of regional integration which they indicate have yet to spread to all parts of the country. Thirdly, as a consequence of the previous point, because of the variations in physical and human conditions from place to place throughout the country, city regions do not cover the whole country's area, and, thus, there are, in effect, gaps between these regions. Fourthly and finally, city regions inevitably differ in their nature, area and population size. This means that there is a difference between theory and practice and so, it is impossible to divide the whole country into city regions with regional metropolitan cities. However, it should be said that the city region, as a concept, is an effective and appropriate frame for regional planning and administrative purposes, if the conditions and requirements for the existence of such a region are available. This is because the city region provides the spatial frame for effective socio-economic relationships.

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APPENDIX A

Fieldwork

One of the main aspects of the fieldwork undertaken for this study was the collection of information in order to define Basrah City's functional regions. This was collected from local people in both rural and urban areas throughout the study area, and from certain establishments, particularly the public ones, in Basrah City itself. The study area, defined as Basrah's administrative region, was surveyed in 1978, 1979 and 1980 by the author and by several field work teams under his guidance, as well as the help of many other people.

During the academic year 1978/1979 the author engaged and directed fieldwork teams, totalling some 120 students from the Basrah University, Geography Department, in order to investigate the catchment of Basrah City. This type of fieldwork lasted for six months, with on average two trips a week, covering large areas surrounding Basrah City. They included, in the north, settlements located along the Basrah-Qurna highway, in the south, settlements on both sides of the Basrah-Abu Al-Khasib highway; eastwards the fieldwork covered settlements on the left bank of the Shatt Al-Arab river and westwards Zubair City and its neighbouring settlements. The settlements surveyed and listed in Appendix B thus constitute about 70% of the total settlements found in the defined area. All of these selected settlements are distributed along the highways, and have year-round road access to the outside. The remaining

30% of the settlements, located in the marshes and other marginal areas, have only seasonal road access and are away from such highways: because of their isolated geographical location they have no choice to buy goods which they need in any city other than Basrah City. This fact was confirmed by individual detailed investigations.

In the settlements surveyed, in order to investigate the strength of Basrah's influence, some 10% of the total number of families in each village were questioned. Because of the high proportion of uneducated people in the rural areas, interviews arranged by the teams according to a prepared questionnaire proved to be the best method of data collection. The survey also included interviews which were arranged with many individuals in these settlements, such as traders, teachers, government officers and health personnel.

The second type of fieldwork involved collecting information about Basrah City's functional regions from commuters who move between the city and its region. The absence of large scale ownership of private cars means that the flow of public transport reflects the movement of people throughout the region. This survey included the movement of buses on all the highways linking Basrah City and its region. The results obtained by this method have confirmed those from the first type of fieldwork.

During the periods of fieldwork already mentioned, particularly on the last work visit to the study area

in 1980, the author arranged interviews with many people living in both urban and rural settlements in this area. Some of the interviewees were working in government offices, economic establishments in both private and public sectors, labour unions and farmers' cooperative associations. Interviews were arranged with other people, particularly those who are familiar with the conditions of their own settlements, among them being the headman, the Mukhtar. Such a person, considered as a mediator between the local government and people living in his rural settlement or urban district, and invariably trusted by both, is thus an important source of information relevant to different aspects considered by this study.

In all types of fieldwork carried out throughout the study area, general information was obtained about settlements, both urban and rural, and their external relations for different functions. The questionnaire to be found in Appendix C comprises a list of questions used in the field survey.

Fieldwork is affected by numerous difficulties in a region such as this study area, where not only the physical obstacles of large marshlands, desert areas and date palm groves, but also the social attitudes of the people can prove a difficulty. Nevertheless, the information obtained by the fieldwork, whether by sample survey or individual detailed investigations, was significant for this study. The results of the fieldwork supported all the main arguments proposed by the author, both in terms of the general theories relating to Basrah's functional region, and in terms of the detailed spatial patterns involved.

APPENDIX B

The selected settlements included in the sample survey in the areas surrounding Basrah City

East Shatt Al-Arab

Diaji	Um Masjid	Bab Hawa
Nahur Jasim	Hai Al Bakir	Ize Al-Dean
Kut Swadi	Zuwan	Sunker
Kut Guwam	Nahur Umar	Muhairat
Kut Toaa	Talaie	Hamza
Tanuma	Zirkania	Muhaila
Girredlon	Diarre	Kut Fadaq
Nahur Hassan	Nihran	Najdy
Kibasi Kabeer	Shinaina	Kut Sarhan
Kibasi Sakcer	Yazdo	Kut Mubarak
Jazera 1	Shafi	Hamdan Yzo
Jazera 2	Wafi	Al-Balad
Jazera 3	<u>Zubair Area</u>	Thweni
Jazera 4	Zubair	Kamrly
Huba	Shiaba	Saied
Kitaiban	Birjesia	Yusfan
Zirraji	Ahly	Muhajran
	Eskan	Abu Khozi
<u>Basrah-Qurna</u>	<u>Basrah-Ab Al-Khassib</u>	Owasan
Abu Sakhar	Dikeam	Kufa
Majidia	Abu Floos	Muhza
Hareer	Abu Al-Khassib	Jidaida
Mishan	Nahur Khuz	Slama
Ali	Tiraweaza	Harub
Haminan	Shakha	Khuraibit
Kolian	Hamdani	Alban
Moaidy	Mageara	Dahi
Muawia	Sibealat	Alyas
Khadabu	Bab Hawa	Fahad Arab

APPENDIX C

Questionnaire

This deals with information about Basrah City's sphere of influence.

A. The journey to work

1. Name of settlement:

2. Location:

3. Occupation:

4. Work place: Home settlement:

Basrah City: Why?

Other: Why?

5. If the work occurs in Basrah, why do you not reside there?

Housing problems in Basrah:

Social reasons:

Personal reasons:

6. Does the journey to work take place:

daily: Why?

Less frequently: Why?

7. Means of transport:

Bicycle:

Car: private: taxi:

Bus:

8. How long does the journey to work take:

9. Transport cost per journey:

B. The sphere of influence of retail trade:

1. Where are the goods bought from:

Home settlement:

Basrah City:

Other:

2. If the goods are bought from Basrah : Why?

Availability of goods:

Quantity of goods:

3. Which kind of these goods are bought from Basrah

Foodstuff:

Household:

Electrical:

Textiles, ready-made clothes and leather:

Furniture:

Construction materials:

Other:

4. Does the journey to shop in Basrah take place:

Daily: Why?

Less frequently: Why?

5. Does the journey to shop in Basrah take place
for:

Shopping only:

Shopping and other purposes:

What kind of other purposes:

Work:

To obtain services: Health:

Administrative: Leisure: Other:

6. If the journey takes place for shopping and
other purposes, which is the most important:

Shopping:

Other purposes: