2.1 BREIF HISTORY OF IRAQ

Iraq, located in South Western Asia (Map: 2.1), is a country with an ancient civilization. The world’s first known civilization and other early cultures developed along the Tigris and Euphrates rivers in what is now Iraq. This riverine land, often referred to as Mesopotamia, has had a complex geo-political history. It having been a seat of empires, a target of conquerors, and at present a focus of oil development and political and military contention involving many other nations.\(^1\) During Iraq’s long history, it has become part of different empires, including Akkadian, Assyrian, Babylonian, Persian, Macedonian, Parthian, Arab, Ottoman and British empires.\(^2\)

It was there that the ancient Sumerian, Assyrians and Babylonians, made spectacular achievements in religious, law and literature. Using a written language with wedge-shaped symbols cuneiform. Iraq has also been one of the most ancient centers of cultivation. The important cereals like wheat and barleys were domesticated in these regions. This region also has been known for the domestication of sheep and goats. Civilizations like Sumer, Akkad, Assyria and Babylonia all developed and flourished in ancient Mesopotamia.

Mesopotamia is the name for the ancient region where modern Iraq now stands. Mesopotamia is a Greek word meaning “between two rivers”. In fact Mesopotamia is a “fertile crescent” wedged between the Tigris and Euphrates, which gave birth to some of the most early and advanced ancient civilizations\(^3\), depended on controlling flooding from the two rivers and on using their waters for irrigation. The control and appropriation of water resources has been the prevalent feature of water management policy in the basin from olden times- a features which characterized them as hydraulic civilization.
The Sumerians

One of the most ancient civilizations in the world came from ancient Iraq. The Sumerians are credited with creating the first identifiable written language sometime around 4000 BC. The Sumerian civilization predates the Greek, Egyptian and Roman Civilizations. It is said that Sumerian culture was the one culture that exerted an overwhelming influence on all that followed. The Sumerians, a highly innovative people, were the first under whom a degree of urbanization took place. The human race’s first cities were developed here, as also its first organized government. The Sumerians invented the wheel and the first plough. They also were among the first pioneers of agriculture. They developed a mathematical system based on the numerical 60, which is the basis of time in the modern world. Sumerian Society was ‘matriarchal’ in essence and women had enjoyed a highly respected position in society.

The Sumerians were the first group of people to have pioneered the written form as a means of communication. They developed the earliest form of writing in history and these were the pictograms [Pictures on Clay tablets]. This later developed into the cuneiform- a way of arranging impressions on clay by sharp chopped off reeds. Through such methods the Sumerians were able to pass on to their descendents, idea and complex techniques learned and develop earlier.

The Akkadians

The Akkadians were a Semitic people, who migrated northwards from the Arabian Peninsula to the river valleys and spoke a language drawn from the Semitic group of languages that includes modern Arabic and Hebrew. The greatest Akkadian military leader was Sargon, under whom the Akkadian empire stretched up to modern day Lebanon. Sargon created the world’s first conscripted army, a development related to the need to mobilize large numbers. Akkadian Strength was boosted by the invention of
the composite bow, a new weapon made of wood and horn. It was the first great empire of ancient times.⁶

**The Babylonian Empire**

The Babylonian Empire flourished under the Hammurabi dynasty that lasted for about two hundred years. In this dynasty, King Hammurabi [1792-1750 BC] was the most famous ruler and under him Babylonia became a leading kingdom and a centre of peace and prosperity. Hammurabi is best known for his codification of the laws governing Babylon. He introduced many new concepts in law and these were also adopted by other civilizations. These concepts include that the state is responsible for enforcing the law, the guarantee of social justice, and enjoined that punishment should fit the crime. “An eye for an eye, a tooth for a tooth” is still quoted today and was the basis of the Hammurabi law code. This code is recognized as the earliest and most comprehensive law code known in history. A copy of the code is engraved on a block of black diorite rock that it nearly 2.4 metres high and was discovered by a team of French archaeologists at Susa during the winter of 1901-02. The block, broken into some pieces, has been restored and can still be seen in the Museum at the Louvre in Paris.

After Hammurabi’s death his successors struggled to maintain order, but disintegration was inevitable. A four hundred year period followed in which little is known on what happened. This is also referred to as the ‘dark’ period of Mesopotamian history.⁷

**The Assyrians**

The Assyrians were Semitic people in the northern reaches of Mesopotamia.⁸ The origins of the Assyrian empire are obscure. Assyrian rule known for being brutal lasted for almost two centuries. They raised the art of warfare to new heights of ruthlessness and savagery. Assyrian rule
was marked by a dramatic growth in science and mathematics. Amongst the
great mathematical inventions of the Assyrians was the division of the circle
into 360 degrees. They were also the first to define ‘longitude’ and ‘latitude’
to aid geographical navigation. The Assyrians also developed a
sophisticated medical system that greatly influenced medical science later in
Greece.\textsuperscript{9} The Chaldeans, who succeeded the Assyrians, re-established
Babylon under king Nebuchadnezzar (ruled 605- 532 BC). He was the most
famous Chaldean ruler who also conquered the Kingdom of Judah. In 586
BC, he destroyed Jerusalem. It was also under the Chaldean that the famed
‘hanging gardens’ of Babylon were reportedly built. Chaldean power
decayed due to a continuing feud between the rulers and the priesthood.

**The Persians**

In 539 B.C., the Persian ruler Cyrus conquered Mesopotamia. By
486 BC, the Persians controlled all of Mesopotamia and, in fact, a vast area
stretching from Macedon (north-east of Greece) to Egypt, from Palestine
and the Arabian Peninsula across Mesopotamia and all the way to India.\textsuperscript{10}

Greek and Macedonian armies under Alexander the Great took the
area from the Persians in 331 B.C. Greek rule continued until the Parthians,
from the Caspian Sea area, established control by 126 B.C. Except for Brief
periods of Roman rule; the Parthians controlled Mesopotamia until about
A.D.226. That year, the Persian Sassanid *dynasty* (family of rulers) seized
Mesopotamia. The Sassanids ruled the region for about four hundred
years.\textsuperscript{11}

**Arab Rule**

The birth of Islam in the AD 600’s inspired Arab Muslims to
conquer the Sassanids in 637. The Arabs brought the Arabic language and
new Islamic religion to Mesopotamia. The Abbasid dynasty came to power
in 750, and soon founded Baghdad as the capital of the Arab Empire. Under
the Abbasids, Arab civilizations reach great heights. By 800, Baghdad had grown into a city of nearly a million people and was a world centre of trade and culture. In 1258, Mongols from central Asia invaded Mesopotamia and destroyed the Arab Empire. The Mongols neglected Mesopotamia, and the region deteriorated culturally and economically under their rule.\textsuperscript{12}

\textbf{The Ottoman period}

Beginning in the early sixteenth century, the Sunni Turkish Ottoman Empire struggled against the Shia Persian Safavid Empire for control of Iraq.\textsuperscript{13} The Ottomans battled with the Persians and local Arab leaders to maintain control over the region. The Ottoman Empire controlled Iraq for most of the ensuing four centuries. However, the Safavids made substantial inroads, and Iraq was under the de facto authority of the tribal confederations beginning in the 17\textsuperscript{th} century. This trend was reversed in the 18\textsuperscript{th} and early 19\textsuperscript{th} centuries, as the Mamluks took control of most of modern-day Iraq. After Mamluks rule ended in 1831, the \textit{tanzimat} administrative and educational reforms of the Ottoman ruler Midhat Pasha increased the influence of urban culture in Iraq. In the same period, Western Europe established commercial outposts and brought technological advances to Iraq. The Turks divided this area into three provinces for better administration. These were the provinces (\textit{vilayats}) of Mosul, Baghdad and Basra. As a part of the Ottoman Empire this area remained in relative obscurity. It remained under Turkish control till the World War first.

During the 1700’s and 1800’s the Ottoman Empire declined in power and size in the face of new, strong nations that developed in Europe. The United Kingdom became involved in the Persian Gulf in the 1800’s to protect its trade routes with India, which was then under British rule. By World War I (1914-1918), the United Kingdom become interested in Mesopotamia’s oil resources.\textsuperscript{14}
2.2 THE MODERN IRAQ

At the end of the World War I, the British and French controlled the West Asia and now had to decide how to divide it, whether to adhere to their Secret agreements with each other, and what, if any, role the Arabs would be given in determining their own fate. The peace conference held at San Ramo on April 24, 1920, formally endorsed the agreements that the French and British had made and assigned them control over large swaths of territory. The French were given a mandate for Syria, whereas the British were given mandate for Palestine and Iraq. In theory, these new imperial inventions were meant to be temporary; that is, the British and French were to rule only until the residents of those areas were prepared to govern themselves. In practice, the mandatory powers were in charge of making this determination and could delay Arab independence indefinitely on the pretext that they weren’t ready. Not all the Arabs were prepared to accept this arrangement and those in Syria demanded immediate independence and had proclaimed Faisal King of Syria even before the mandate was formalized. This did not sit well with the French, who viewed the nationalist movement as a challenge to their rule. In short order, French forces captured the Syrian capital of Damascus and deposed Faisal, who fled to Palestine.

In Iraq, revolutionary forces also rebelled against the imperialist plan for their country and the promise for independence that was being reneged. As in Syria, however, the response was Swift and overwhelming, and the British quickly pacified the country. The partially offset Arab Anger and to assuage the feelings of Faisal, the British offered the throne in Iraq to the deposed king of Syria. This created a new problem for the British because Faisal’s older brother, Abdullah, had to be rewarded for this role in the Arab revolt. Because Abdullah had expected to be made ruler of Iraq, he had to induce to give up his claim in favor of his brother. In return, the British agreed to make him in the area he occupied east of the Jordan River.
Winston Churchill simply lopped off nearly four-fifths of Palestine in 1921 and called in Transjordan.

From Faisal to the United Nations

After putting Faisal on the throne in 1921, the British decided to eschew the route of a mandate and write a treaty instead to assert control over Iraq. Under pressure from Iraq’s independence movement the United Kingdom (UK) signed a treaty with Iraq in 1930. In the treaty, UK promised military protection and eventual independence for Iraq. In return, Iraq promised the UK continued use of British air bases in Iraq. It also agreed to use foreign advisers from the United Kingdom only. The importance of Iraq grew with the production of oil in 1930, but the stability of relationship with British was shaken by Faisal’s death in 1933, a year after being given independence. A series of Regimes followed; several of which were brought about as a result of violent coups. So long as the resulting leadership remained favorably disposed toward England and loyal to the treaty, the British didn’t intervene.

The beginning of World War II introduced new concerns for the British as many Arabs began to view the Nazis as possible allies against the Zionists, spurred on by the arrival of the exiled Mufti of Jerusalem. Early British losses also raised fears among Iraqis of being on the wrong side of the war. Rashid Ali executed a coup d’etat in April 1941 and sought military aid from the axis and rebelled against the British. The British rushed troops to Iraq and crushed Ali’s forces. The Iraqi government once again returned to its pro-Ally orientation and ultimately declared war on Germany, Italy, and Japan and subsequently became the first Arab nation to sign the United Nations declaration.
Palestine Influences Iraqis

After the war, a surge of nationalism led Iraq’s leaders to seek revisions in the treaty with Britain that would make the country less dependent and reduce the British military presence on Iraqi soil. Iraq attitudes towards Britain and the United States became inflamed in late 1947 after the United Nations decided to partition Palestine. The revised treaty was abandoned and Iraq sent troops to invade Israel.

Legislation was subsequently adopted making Zionism a capital crime. The 2,500 year old Jewish community soon found life at best comfortable and often dangerous. In Iraq according to Iraqi law, the Jews had to sell their property and liquidate their businesses before they could leave. Many sold large properties for ridiculous sums so that they could immigrate. By 1952, 130,000 had fled to Israel.

Rise and fall of the Monarchy

On May 2, 1953, eighteen year old Faisal II became king of Iraq. His government soon began to seek ways to counter the growing influence of Egyptian president Nasser and his Pan-Arab movement, which was viewed as a threat to the monarchy. Iraqi officials met with the Saudi monarch and convinced him that he no longer had to worry about revenge of the Hashemite family, but should be more concerned about Nasser. King Saud agreed and a new “King’s Alliance” was formed that was later enlarged to include Jordan’s King Hussein. Iraq and Jordon also agreed in 1958 to create a federative state to counter the union of Syria and Egypt.

The Iraqi leadership remained sympathetic to the Western powers and became part of their Cold War fight against communism. This led to growing isolation of Iraq within the Arab world. At the same time, oil production was becoming a more important part of the economy and a source of substantial revenues. The country’s increased wealth and
perceived subservience to Western imperialism alienated growing numbers of Iraqis, including members of the military. On July 14, 1958, Brigadier General Abdul Karim Kassem staged a coup and executed the king and the other members of the royal family, putting an end to the monarchy. The new revolutionary government declared its commitment to the Arab world and Muslim nations and gradually moved toward a neutral policy toward the East and West, through with a tilt toward the communists.

**Iraq Takes a Baath**

Iraq’s relations with fellow Arab States remained tense, especially with Egypt, which was impatient with any country that did not see the wisdom of joining its Pan-Arab club under Nasser’s leadership. Kassem’s regime became particularly unpopular in 1961 after Britain granted Kuwait its independence and six days later, Kassem declared that the territory belonged to Iraq. When the rest of the Arab League came to Kuwait’s defense, Iraq was isolated. In 1963, he was killed in a coup.

The new Iraqi regime was associated with the Socialist Baath Party. A month later, the Syrian branch of the party Seized control in that country. Both were also committed to Arab Unity and moved toward a merger with Egypt, but abandoned the idea when it became clear Nasser meant to dominate the unified entity.

Iraq remained part of the Arab coalition seeking to destroy Israel. In June 1967, Iraq sent a token force to the Jordanian front. After the war, the Soviets replaced weapons destroyed by Israel and offered the Iraqis financial aid, which helped establish Iraq as a military power. The humiliation by the Israelis, however, intensified internal opposition to the government and the military executed a coup in 1968. Under the leadership of General Hassan al-Bakr, Iraq became an even more repressive dictatorship.
Iraq took an increasingly harsh line toward Israel and although it again sent only a token contingent to fight in 1973, became one of the most outspoken Arab governments in its commitment to liberate Palestine. When Egypt signed a peace treaty with Israel in 1978, Iraq emerged as the leader of the rejectionist front opposing the agreement.

**Iraq under Saddam Hussein**

In the 1970s Saddam Hussein was able to patch relations with most Arab States, substantially improve economic conditions, and in 1979, al-Bakr resigned, or was forced out, by the number two person in the government, Saddam Hussein. Over the next several months and years, Hussein firmly established his control over the government by executing anyone who represented a real or imagined challenge and making clear through his ruthlessness that no dissent would be tolerated. Hussein efforts to expand his influence led to two costly wars, first with Iran and then with the US led coalition forces. Although Hussein survived, his people suffered. After the Gulf War, the United Nations imposed trade sanctions that were only to be lifted after Iraq destroyed its chemical and biological weapons, terminated its nuclear weapons programs, and accepted international inspections to see that these conditions were met. The sanctions restricted oil sales, but this was later modified to allow Iraq to sell limited amounts of oil for food. The sanctions were further relaxed in 2002 to allow more humanitarian aid into the country.

The U.S. Congress provided funding for Iraqi opposition forces in the hope that they might topple Saddam. Those efforts were widely criticized as ineffective and insufficient to do the job. U.S. and British war planes to patrol the skies over the parts of northern and southern Iraq (declared to be no-fly zones to protect the Kurdish and Shia populations), occasionally drawing fire from Iraqi anti aircraft batteries, which would provoke retaliatory attacks on the Iraqi positions by Allied Planes.
In 2003, the Bush Administration announced it would seek a change of regime in Iraq and believed the progress Hussein had made toward building a nonconventional arsenal made Iraq a threat to the United States. “Kes” name this is an urgent matter of American national security. On March 19, 2003, the United States led a coalition of forces in a war to liberate Iraq. Combat ended on May 1, 2003, with U.S. forces occupying most of the country and working toward the establishment of a new Iraqi government.16

On December 30, 2006 Saddam Hussein is executed by hanging. In 2007, September, controversy over private security contractors after Black Water Security guards allegedly fire at civilians, Killing 17. In 2008 November the Iraqi parliament approves a security pact with the United States under which all US troops are due to leave the country by the end of 2011. In January, 2009 Iraq takes control of security in Baghdad’s fortified Green Zone and assumes more powers over foreign troops based in the country. Prime Minister Nouri Maliki welcomes the move as Iraq’s “day of Sovereignty”.17

2.3 PHYSICAL SETTING

1. Size and Geographical Location

The Republic of Iraq (Al-Jumhuriya–Al-Iraqiya) is an almost landlocked state in Western Asia with a narrow outlet to the sea on the Persian (Arabian) Gulf. The area of Iraq is about 4, 38, 446 Sq.km. (169,285 mi²).18 It lies between the latitudes 28°59’ to 37°20’ North and, the longitudes between 38°46’ to 56°40’ East19. Iraq is separated from other neighboring countries by natural and political boundaries. In the north it is separated from Turkey by Taurus Mountains and in the east by Zagros Mountains. In the south southwest and west its boundary, which is geographical in character conforms to Kuwait, Saudi Arabia, Jordon and Syria (Map: 2.2) respectively. In the south lies Arabian Gulf20 which gives
a central area of about 60 km in length. The location of Iraq has played a major role in the history of mankind particularly in the field of commerce and trade routes. Its ancient civilization, its manpower resource and its economic capabilities provided by its fertile lands and abundant water resources gave it a prime position in the countries of the world. In the medieval ages, the commercial routes between east and west passed through Iraq and in the Abbasid period, Baghdad was one of the most eminent cities in the world, where people came from all parts of the world to acquire knowledge. Iraq still retains its strategic position even in this jet age. Apart from the strategic land routes which pass through it, its position has been further enhanced by the occurrence and production of oil.

2. Structure and Relief

In the northern and north-eastern region, lie the young fold mountains. The height of these mountains decreases gradually as one proceeds to the south. It is believed that the force of compression were most intense in the northern and north eastern region which led to the formation of Nappes\textsuperscript{21} and also raised the height of the mountains while the south-eastern region was subjected to simple bending. In the western and South-western region a large plateau extends up to the Syrian border and towards the Arabian Peninsula. It consists of strong and ancient rocks covered with a thick layer of limestone.\textsuperscript{22} It is supposed to be part of the old continent “Gondwana Land”. However, the plateau has been much subjected to denudation and the limestone cover has been largely removed. In the west, there are ancient crystalline rocks while in the east the rocks are of recent origin.

The plateau slopes towards the east as rivers flow generally from west to east. In the centre and the south the land assumes a plain surface since the tertiary times\textsuperscript{23}. This plain slopes gradually towards the south. In the western region hillocks and plateaus again make their appearance. The
origin of this plain bears some semblance to the Indo-Gangetic plain. Like the Indo-Gangetic plain\textsuperscript{24}, the area today occupied by the plains in Iraq was formerly a fore deep before the crustal waves of northern tertiary mountains, in which the rivers from the north brought huge amount of debris and deposited in the fore deep which got filled up and thus came into existence the plain of Iraq. The Arab Gulf\textsuperscript{25} was not at its present position in the past. The Gulf has been receding and the delta of the rivers have been advancing at an average rate of one mile (1.609 km) in one century, and if this continues, it is possible that in not too distant future the Arab Gulf may become a land area.\textsuperscript{26}

The tectonic movement which occurred in the northern part of Iraq also involved the nearby areas of Iran and Turkey and in the lower Miocene period these tectonic movement gave rise to the high mountain ranges in the north of Iraq.\textsuperscript{27} In the Miocene period the western plateau in the western and south-western parts of Iraq remained stable and offered resistance to the southward advancing crustal wave and checked their advancement. The plateau being rigid acted as a shield and geological parlance formed part of the Gondawana land.

3. Drainage

Iraq is called the land of two rivers because the rivers, Euphrates and Tigris, (Map: 2.3) are the basis of its economic wealth, not only at present but since the ancient historical times, and on the banks of there rivers, flourished the glorious civilization in the past.

**Euphrates (Al- Furat)**

The Euphrates (2650 km) originates in Turkey, is joined by the Nahr al Khabur in Syria (“nahr” means river in Arabic), and enters Iraq in the north-west. Here it is fed only by the wadis of the western desert during the winter rains. It then winds through a gorge, which varies from two to
sixteen kilometers in width, until its flows out on the plain at Al-Ramadi.\textsuperscript{28}

The Euphrates on its long journey from the Turkish highlands to the Gulf is about two thousand and eight hundred kilometers long and at point in Syria, it is only about one hundred and fifty kilometers from the Mediterranean Sea. Since ancient times traders have followed the course of the river as a transit route from the Mediterranean to the Gulf.\textsuperscript{29}

\textbf{Tigris (\textit{Dijlah})}

The words ‘Tigris’ derived from old Persian, means ‘\textit{the fast one}’ its Arabic name is \textit{Dijlah}. The river Tigris (1718 km) raising in the mountains between Kharput and Malatya, it flow through Turkey in a South eastern direction past Mosul and Baghdad to its junction with the Euphrates at Qurna.\textsuperscript{30} Tigris is narrower, swifter, and carries more water than the Euphrates.\textsuperscript{31} Tigris is important for its irrigation capacity, it gave rise to sustained civilization.\textsuperscript{32}

\textbf{Shatt-al-Arab}

The Tigris and Euphrates join at Qurna, and the river that than flows down into the Persian Gulf is called Shatt-al-Arab, “the rivers of the Arabs.”\textsuperscript{33} The Shatt-al-Arab is about one hundred and ninety kilometers long and varies in width from about two hundred and thirty-seven metres near Basra to about 0.8 kilometres at the mouth when it enters the Gulf (Map: 2.4). Another tributary of the Shatt-al-Arab is the river Karun, which join it from the Iranian side. This river brings with it copious amounts of silt and this means that constant dredging is required to make it navigable.\textsuperscript{34}

The waters of the Tigris and Euphrates are essential to the life of the country, but they may also threaten it. The rivers are at their lowest level in September and October and at flood in March, April and May, when they may carry forty times as much water as at low mark. Moreover, one season’s flood may be ten or more times as great as that in another year. In
1954, for example, Baghdad was seriously threatened, and dikes protecting it were nearly topped by the flooding Tigris.\textsuperscript{35}

It will not be wronged to say that Tigris-Euphrates basin is the life line of Iraq’s economy. A great deal of the nation’s life revolves around these two rivers and their tributaries. As a matter of fact, Iraqi rarely refers to them separately but speak of them as al- Rafidayn, a collective noun meaning “two rivers”. The greater part of the population lives in the river basins. For centuries villages, towns, and cities were built as close as possible to the water-some right on the river bank. This is true today in modern Iraq, and it is true particularly of the three cities of Baghdad, Basra, and Mosul.\textsuperscript{36}

**Physical Divisions**

On the basis of topography, Iraq may be divided into four physical divisions (Map: 2.5).

**(A) Desert**

The Desert zone, an area lying west and south west of the Euphrates River, is a part of the Syrian Desert, which covers sections of Syria, Jordan, and Saudi Arabia. The region sparsely inhabited by pastoral nomads, consists of a wide, stony plain interspersed with rare sandy stretches. A widely ramified pattern of wadis -watercourses that are dry most of the year runs from border to the Euphrates. Some wadis are over 400 km (250 miles) long and carry brief out torrential floods during the winter rains.\textsuperscript{37}

**(B) Jazirah: Northern Mesopotamian Upland**

Most of the Jazirah upland, extending from Syria into central Iraq, is a desert plateau descending from 1,475 ft/450 m in the north-east to 260 ft /79 m at Baghdad. Except for river flood plains and for the segment north-west of Mosul population is sparse and development limited. In the extreme
north a prominent outlying ridge of the Zagros Anti-Taurus folds, the Jabal Sinjar, extends westward from Mosul.

The region is drained from north to south by the steep banked wadi Tharthar, which empties into the extensive Tharthar depression midway between the Tigris and Euphrates. A major project in the 1950’s developed an artificial lake in the depression into which Tigris flood waters can be diverted by the Samarra Barrage and from which overflow can be spilled southward into the Euphrates. North of Jabal Sinjar, the undulating plateau is devoted to rainfed cultivation of wheat and barley and is bisected by the main rail line from Europe to Basra. Mosul, third largest city in Iraq, lies on the northeast periphery of the Jazirah but serves as the main center for the northern third of the country.38

(C) Southern Mesopotamian- Alluvial Plain

Begins near Samarra and extends south-east to the Persian Gulf. It includes the fertile delta between the Tigris and Euphrates rivers, where many people live. The Tigris and Euphrates meet at the town of Al-Qurnah and from the Shatt-al-Arab River, which empties into the Gulf. Some oil fields lie between the Shatt-al-Arab and border with Kuwait. Complex dam and irrigation systems control the flow of water in the southern plain. The result has been increased agricultural productivity and more permanent human settlement, especially north of Al-Kut. Much of the region south of Al-Kut is swampland, due to frequent flooding and poor drainage. In 1993, the country began a program to dry up much of the swampland.39
(D)Northeastern Uplands and Zagros Mountains

Uplands, piedmont, a rugged mountains rising northeastward from the upper Tigris in Iraq exhibit a sharp contrast to the desert plains areas the cover most of the rest of the country and that typify perceptions of Mesopotamia and Iraq. Except for a ridges near the Tigris (Jabal Hamrin, for example) the major highlands lie northeast of a line connecting Zakhu, Mosul, Irbil, Kirkuk and Khanaqin. Elevations rise from 655 ft/200 m on the lower piedmont just east of the Tigris to 3,000 ft/915 m in the foothills, then reach 5,900 ft/1,800 m on the typical ridge tops and 11,808 ft/3,600 m in a Summit elevation on the Iranian border east of Rawanduz.

Ridges in the far north extend east-west following the trend of folding in the Taurus and Anti Taurus mountains, whereas tectonic trends south of Rawanduz turn southeast and thence combine with the Zagros folds. Several streams flow deep gorges that are parallel to the folds in their upper course and then cross the grain of the folded ridges to join the Tigris: the Khabur, Great Zab, Little Zab, Udhayam and Diyala. The highest ridges contain Iraq’s only forests, some of them quite extensive, preserved by the isolation and ruggedness of the area. Most of the mountain slopes permit only grazing, lower and more gentle slopes support fruit and nut trees, and the broad lower valley bottoms are intensively cultivated. Access to the higher areas is limited and passes through the rugged Zagros Summit ridges into Iran are a few.

A part from its landforms, northeastern Iraq is also noteworthy for its concentration of minority populations, primarily Kurdish but also Turkmen and Assyrian, and the presence in the folded near Kirkuk of Iraq’s principal group of main petroleum fields. The ruggedness and isolation of the elevated Zagros afford a refuge for the pastoral Kurdish tribes, and the same tectonic forces that created the folded hills and mountains produced the subsurface structures in which petroleum and gas accumulated.40
2.4 CLIMATE

The climate of Iraq has often been described as continental. Although Iraq is a small country, the general description of continentally does not hold good as a variety of climates in respect of temperature and rainfall prevail in different parts of the country in the different seasons. Broadly speaking the climate of Iraq is sub-tropical continental with hot summers and cold winters. During the summer months the temperature goes above 30ºC for several months of the year with a high annual and diurnal range of temperature. There is no rainfall during the summer months and the duration of the months of spring and autumn is short (Figure no. 2.1).

The climate of Iraq is closely influenced by its latitudes and altitudes. In general Iraq’s Climate is characterized by high summer temperature and aridity. In the lowlands of the southern part, rainfall occurs only between November and April which totals about 15 cm, whereas the northern mountainous parts receive between 40 cm and 70 cm of Rainfall. Summer in the plain is dry and extremely hot with a persistent northwest wind (the ‘Shamal’). In Baghdad, the mean monthly temperature of July reads about 34ºC, while the average temperature in January is only about 10ºC.41

Climatic Regions

The climatic regions of Iraq broadly correspond to the physiographic divisions and on the basis of temperature and precipitation. The country can be divided into three climatic regions (Map: 2.6).

1. Cold winters and Mild Summers with Moderate to Heavy Rainfall

This region is characterized by its height which varies from 2500-400 feet above sea level, and contains an area of about 12 percent of the total area of Iraq. Winters are cold with snowfalls, and summers are dry and
the temperature is moderate. Rainfall is heavy and reaches as high 1000 mm.

2. The Transitional Region: Mild winters and warm summers with Moderate Rainfall

This transitional region is located between the humid region in the north and dry region in the south and occupies an area of 18 percent of the total area of Iraq. This region characterized by a moderate winter where the temperature does not fall below -5°C. Snowfall is rare and the region corresponds to the sub-mountain region receiving rainfall exceeding 300 mm, annually and is characterized by an increase in the relative humidity where it reaches 65-85 percent.\textsuperscript{42}

3. Warm winters, hot summers and Little Rainfall

This area is characterized by warm winters. During some years temperature might fall in this region below 0°C owing to continental cold winds from the north or northeast.\textsuperscript{43} The annual rainfall in this area is very little and does not exceed 200 mm. The summers are dry and hot. This region covers the greater part of the west, central and south Iraq, about 70 percent of the total area of Iraq.
### Table No. - 2.1
WEATHER DATA FOR IRAQ

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<td>104 (40)</td>
<td>97 (36)</td>
<td>86 (30)</td>
<td>70 (21)</td>
<td>57 (14)</td>
</tr>
<tr>
<td>Average Low °F(°C)</td>
<td>39 (4)</td>
<td>41 (5)</td>
<td>46 (8)</td>
<td>57 (14)</td>
<td>66 (19)</td>
<td>73 (23)</td>
<td>79 (26)</td>
<td>77 (25)</td>
<td>70 (21)</td>
<td>61 (16)</td>
<td>48 (9)</td>
<td>41 (5)</td>
</tr>
<tr>
<td>Precipitation inches (mm)</td>
<td>5.2 (132)</td>
<td>5.04 (128)</td>
<td>3.11 (79)</td>
<td>2.91 (74)</td>
<td>1.02 (26)</td>
<td>0.08 (2)</td>
<td>0 (0)</td>
<td>0.63 (16)</td>
<td>0.12 (3)</td>
<td>1.46 (37)</td>
<td>3.7 (94)</td>
<td>3.74 (95)</td>
</tr>
</tbody>
</table>

**Source:** [http://www.weather.uk.msn.com](http://www.weather.uk.msn.com), Dated on 2009-12-29

IRAQ WEATHER GRAPH

![IRAQ WEATHER GRAPH](image)

**Figure No. 2.1**
2.5 BIODIVERSITY

Biodiversity is an economic driver for creation of a sustainable economy in Iraq. Although Iraq has a generally arid climate, locally it is rich in water resources and wetlands. The many wetlands in Iraq, fed primarily by Tigris-Euphrates, (Map: 2.7) were until recently of outstanding regional and global importance. Besides supporting human communities (the Ma’dan or Marsh Arabs) these wetlands are crucially important for breeding and migratory water birds. Many bird species that migrate between Eurasia and Africa or Southern Asia rely on Iraq wetlands for rest and feeding. The main habitats in Iraq are Wetland (<5%), Coastal (<5%), Desert (<80% of land), Steppe (<15% of land) and forest and high mountain Scrub (<5% of land). According to United Nations Environment programme –World Conservation Monitoring Centre 2004 (UNEP-WCMC) Iraq contains 42 important Birds areas (IBAs) and Mesopotamian marshes Endemic Bird Area (EBA), 11 Amphibian species, 396 Bird species, 102 mammal species, 99 Reptiles species, and the total numbers of native tree species are 20.44

Analysis of Serial Satellite images confirms a less of around 90% of the lakes and marshlands in the lower Tigris -Euphrates during the last three decades. The only significant permanent marshland remaining is the Al-Hawizeh region. The very large numbers of dams now present on upstream parts of the Tigris –Euphrates system may have contributed to this loss, but it appears to be primarily the result of major hydrological engineering works in Southern Iraq. The Ma’dan are now largely displaced with Iraq or in refugee camps in Iran, and biodiversity in the region will inevitably have been affected. Natural forest was estimated to cover 4% of the country in 1948; more recent (figures no. 2.2) shows the 1990-2000 reduced this estimate to 79,000 (ha) representing approximately 0.2% of Iraq’s total land area.
### Table No. 2.2

**Percentage change in forest area by Type 1990-2000**

<table>
<thead>
<tr>
<th>Change in forest area</th>
<th>Iraq</th>
<th>Middle east &amp; North Africa</th>
<th>World</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, 1990-2000</td>
<td>0%</td>
<td>2%</td>
<td>-2%</td>
</tr>
<tr>
<td>Natural, 1990-2000</td>
<td>0%</td>
<td>X</td>
<td>-4%</td>
</tr>
<tr>
<td>Plantation 1990-2000</td>
<td>3%</td>
<td>X</td>
<td>3%</td>
</tr>
<tr>
<td>Original forest as a % of total land area</td>
<td>13%</td>
<td>X</td>
<td>48%</td>
</tr>
<tr>
<td>Forest area in 2000 as a % of total land area</td>
<td>2%</td>
<td>2%</td>
<td>29%</td>
</tr>
</tbody>
</table>


### Figure No. 2.2

**Percentage Change in Forest Area by Type 1990-2000**

![Graph](image-url)
Key species comprise largely oak, quercus, aegilops, pine, pinus and brutia, mostly located in the mountains, along Iraq borders with Turkey in the Zagros-Taurus Mountains. Remaining forest has been heavily exploited for fuel wood and grazing needs. Where forest has been completely eliminated, secondary steppe vegetation often replaces it, or it is converted to dry cultivation of cereals. Situated mainly within the desert and semi-desert zone extending from northern Africa and Arabia into southwest Asia, Iraq is not rich in wild species. Most of the resident species also occur widely in neighboring countries. Although strict country endemics are few, several are restricted to the wider region overall numbers are similar to those in adjacent countries, such as Syria and Saudi Arabia, but markedly lower than Turkey and Iran, both larger and with a greater diversity of ecosystem.⁴
Mesopotamian Marshlands

The core of the Basin is shared by four countries, Turkey, Syria, Iraq and Iran. In addition to large scale ecosystem disruption, the Tigris–Euphrates river system has attracted growing international attention in recent years due to the high water stress facing this semi-arid region, which is becoming a growing source of geo-political tension between riparian counties.46

Mesopotamian Marshlands formed one of the most extensive wetland ecosystems in Western Eurasia. It comprised a complex of interconnected freshwater lakes, marshes and inundated floodplains following the Tigris and Euphrates rivers, (Map: 2.8) extending from Baghdad in the north to Basra in the south, approximately 50 km². These remnants would have the potential to help restore the marshlands.47 It is originally covering an estimated area of 15,00-20,000 km², the Mesopotamian marshlands are one of the world’s great wetlands whose aquatic ecosystem has supported unique human communities for millennia. Comprising the largest wetland ecosystem in South-West Asia, their global significance stems from the role they play in the intercontinental migration of birds, and for sustaining rare and endemic flora and fauna, important jewels in the biodiversity crown. Located in the downstream section of the Basin in Southern Iraq and extending partly into Iran.

Environmental impacts

Large scale water diversion projects are rapidly degrading the Tigris-Euphrates marsh ecosystem. Changing the rivers flow with canals, dikes, and dams has cut off the water flow to extensive marsh areas, causing them to dry up. In addition, drainage canals flush salt from irrigated lands into wetland system, increasing salt levels in the area. Regional conflicts and increased human settlements have also greatly increased pollution of the wetlands. It is also heavily degraded by the 1980-1988 Iran–Iraq war.
Much of the fighting took place in and around these wetlands resulting in extensive burning, heavy bombing and wide spread use of napalm and chemical weapons. All of these factors contribute to habitat loss and degradation (Map: 2.9). Unfortunately these marshes currently have no form of legal protection.

2.6 POPULATION-ETHNIC DYNAMICS

Iraq is an inseparable part of the Arab nation. It is bounded to the west by Syria and Jordan, to the South of the Kingdom of Saudi Arabia, Kuwait and the Arab Gulf, to the East by Iran and to the north by Turkey. The area of Iraq is 438,466 square kilometers. Iraq is divided into 18 administrative units called Muhafadhas. Three of these Muhafadhas are in the Autonomous Region: Arbil, Sulaimaniyah and Duhok.

The population of Iraq is the fifth largest in the West Asia and North Africa. The population was estimated at 28,945,657 in July 2009, an increase from the 1980 population was 13.2 million. In 2009 Iraq’s birth rate stood at 30.1 per 1000 population, while the death rate was reported at 5.03 per 1000 population. With a projected growth rate of 2 percent between 2000 and 2015, the population is expected to reach 38 million by the year 2030. Some 97 percent of the population are Muslims. Shiite Muslim constitutes 60-65%; while Sunnis comprise 32-37% of Muslims in the country. The remaining 3% is made up of Christians and other religious groups. The Kurds, descendants of Indo-European tribes who settled in Iraq in the 2nd century B.C. make up 15-20% of the population. Arabic is the official language, but Kurdish, Assyrian and Armenian are also spoken.

Iraq is the most densely populated Arab State east of Egypt and it is unique in region in combining a relatively large population with very substantial oil revenues. In 2009 the density of population was 71.2
persons per square kilometers while in the year 2008 it was only 65 persons per square kilometers\textsuperscript{52} (Map: 2.10).

Iraq population growth has increased since 1993, despite the exodus of the middle class as a result of the Gulf war and the adverse effects the United Nations (UN) Economic sanctions imposed since 1991. Population growth before the 1991Gulf War was as high as 3.6 percent annually. The government has strongly encouraged population growth. With a high fertility rate and a relatively young population, 45 percent of which is under 15 year’s age, population growth is expected to remain high. Population growth dropped significantly to 1.9 percent in 1993 but resumed in later years, with the growth rate reaching 2.98 percent in 1998. After 2000 the population growth rate gradually decreased due to regional conflict and frequent attack on Iraq and finally it reached 2.507 in the year 2009.\textsuperscript{53}
Table No- 2.3

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population growth rate in (%)</td>
<td>2.86</td>
<td>2.84</td>
<td>2.82</td>
<td>2.78</td>
<td>2.74</td>
<td>2.7</td>
<td>2.66</td>
<td>2.618</td>
<td>2.562</td>
<td>2.507</td>
</tr>
</tbody>
</table>

Source: CIA World Fact Book.

IRAQ POPULATION GROWTH (2000-2009)

As in many developing countries, a majority of Iraqis live in urban areas. The population of urban areas has grown significantly since the 1960’s at a rate of 5.2 percent annually. Baghdad is the country’s capital and Basra, Kirkuk and Mosul are the main urban areas. Baghdad and its suburbs are home to some 31 percent of the population.
Ethno-linguistic Groups

The Republic of Iraq is a land of diversity, inhabited by a mosaic of peoples who differ in cultural traditions, social customs, dress, diet, and ways of life. And it is these differences that set Iraq apart from any other West Asian country. Nearly 80% of the Iraq’s population is Arab. The most significant non-Arab minority are the Kurds. They are about 17% of the population. Most, though not all, Arabs and Kurds are Muslims. A tiny minority of Arabs are internally divided schism between Shiite and Sunni Muslims. Arab Shiite Muslims are about 60% of the total population and thus constitute the majority; the Kurds are largely Sunni Muslims. The Christians are only about 1-2% of the population. Thus Iraq is an overwhelmingly Muslim dominated country, although a sharply divided one (Map: 2.11).

Arab

Comprising more than 77% of the population, Arabs have been the dominant group numerically and politically for 1,000 years. During most of that period, they have considered themselves the eastern bulwark against non-Arab influences. The Iraqi Arabs represent a biological mixture of many people’s over thousands of years.

Sunni

Although only about 20 percent of the Arabs in Iraq are Sunni; they have been the dominant economic and political group for many centuries. Since Shiis have long been associated with Iran and Iranian, Sunnis have considered themselves the Mesopotamian ‘Loyalists’, with a reciprocal affinity for the predominantly Sunni Arab neighboring countries. During the centuries of Sunni Ottoman control of the Iraq, Shiis became alienated, isolated through endogamy, and suffered decreased cultural and economic opportunities. Virtually all of the Kurds are also Sunni; so that the
combined Sunni groups make up approximately 37 percent of the total population.

**Shiism**

The original partisanship for Ali, emerged in southern Iraq during the seventh century, and Shiis strength in southern Iraq has continued to the present time, although the major concentration of the sect evolved in neighboring Iran during the sixteenth century. The proportion of Shiis in the Iraqi population exceeds 60 percent, with their major strength in the areas in which population is most concentrated.\[^{56}\]

**Kurds**

The origins of the Kurds are unclear, but there is common consent within the academic literature that they are an Indo-European people descended from waves of migrations originating on the Indian subcontinent and spreading across the Mountains of Turkey, Iraq and Iran and into Europe, that occurred several thousand years ago.\[^{57}\] Iraqi Kurds, the country’s only large non-Arab minority, constitute about 17 percent of the total population. Mostly Sunni Muslims, the Kurds speak their own language, which is related to Persian. Having lived in Mountainous parts of Southwestern Asia for at least 3,000 years they have reputation for toughness and devotion to their religion, families and tribes.

In all, it is estimated that there are more than 20 million Kurds in Southwestern Asia; most of them are in Iraq. In 1920 the Kurds were promised their own Kurdish state by the Treaty of Švres. Based on a strong sense of national identity, they continue to wish for an independent Kurdistan. Following the old principle of “the enemy of my enemy is my friend”, the governments of Iraq, Iran, and Turkey have sometimes cooperated with each other in efforts to suppress Kurdish nationalism within their own borders.\[^{58}\]
Turkmen

Making up about 1.4 percent of the Iraqi population, Turkmen live in the piedmont and foothills of the northeast. They form an ethnic transition between the Arabs of Mesopotamia and the Kurds of the Zagros and are numerous in both Kirkuk and Irbil as well as in villages on the piedmont. Turkmen are Sunni and middle class, and many have become integrated and serve as government employees.

Other Ethnic minorities

Smaller ethnic minorities include Persian-speaking Shiis with strong ties to Iran, many of whom were expelled to Iran in the early 1980s when they voiced pro-Iranian sentiments. Their strongholds were Karbala, al-Najaf and al-Kazimiyah (near Baghdad) as well as Basra. Another Persian speaking group, the Lur, is concentrated in tribally organized villages near the Iranian frontier.

Jews

Jews numbered 118,000 in the 1947 census but were undoubtedly more numerous, since in 1951 about 121,000 migrated to Israel and several thousand went to Iran. Before 1951, Iraqi Jews generally lived in urban areas, often as merchants, professionals, and government official in Baghdad. A few thousand remained in Iraq in the mid 1980s but, most of them emigrated later.

The Christian Armenians

The Christian Armenians are estimated to number about 20,000 and are usually urban. The small groups of Mandaean also called Sabians, Subba, or John the Baptist Christians are an interesting ancient people of uncertain origins who are differentiated primarily by religion but who are also physically distinct. The Yazidis, an extension of the Yazidis in Syria, live in villages along the Jabal Sinjar west of Mosul.
Christian Minorities

In addition to the Christian Armenians, several other distinctive Christian groups are significant in Iraq. Most of them are in the north, particularly in the Mosul area, but there are others in the Baghdad area. The largest group is the Chaldeans, in Mosul and villages on the surrounding plain but also numerous in Baghdad, seat of their patriarch. Assyrians, sharing a common origin with the Chaldeans, are concentrated mainly in the extreme north around Zakhu and Dahuk, in Kirkuk, and in Baghdad.59

2.7 NON – OIL NATURAL RESOURCES

(1) Natural Vegetation and Wildlife

Climate is the major determinant of natural vegetation in Iraq and rainfall is more important than all other factors. In the north; where rainfall is heavy, one comes across dense vegetation, but farther south, rainfall decreases and forests are replaced by grassland. In the west, as rainfall is scanty, the grassland is replaced by Semi-Arid lands (Map: 2.12). The country has few trees, except for the date palm, which is planted and cultivated, and the popular. Among the many animals found in Iraq are the cheetah, gazelle, antelope, wild ass, hyena, wolf jackal, wild pig, hare, zebra, lizard and bat. There are also numerous bird species found in Iraq, including the vulture, buzzard, raven, owl, duck, goose, partridge, and sand grouse, and various species of hawks.60

(2) Soils

The soil of Iraq varies from one region to another because of the difference in relief, climate and natural vegetation (Map: 2.13). Generally the soils of Iraq can be called as transported soil, light calcareous loams61 in spite of the existing local variations. However, it is poor in organic matter and rich in salts. The reason for the poverty of organic matter is because of
the long summer season and the accompanying high temperature which destroys the organic matter found in the soil. The scarcity of natural vegetation has further reduced the fertility and organic matter of the soil. Based on the characteristics there are two main types of soils in Iraq. Heavy alluvial deposits, containing a significant amount of humus and clay, make up one type and are used for construction. The second main soil composed of wind-deposited nutrients. A high saline content in some areas contaminates the otherwise rich composition of the soils. Irrigation and flood control projects on the Tigris and Euphrates Rivers help increase the agricultural production of this area.

(3) Water Resources

Iraq has more water than most West Asian nations, which led to establishment of one of the world’s earliest and most advanced civilizations. Strong, centralized governments a phenomenon known as “hydraulic despotism” emerged because of the need for organization and for technology in order to exploit the Tigris and Euphrates rivers. There are three sources of the availability of water in Iraq: Snow, and rains, surface water (Tigris and Euphrates and their tributaries and Shatt-al-Arab) and underground water. The rainfall period in Iraq extends from the end of autumn season till the end of spring season and characterized by irregularly in the incidence of rainfall as well as the quantity of rainfall from year to year. The amount of rainfall increases as one goes from south to north where the maximum amount is about 1000 mm in the far north in the hilly areas on the Iraq–Turkish border. As such the northern region depends on the rainfall during winter and on the underground water during summer. But surface water is available from the rivers Tigris and Euphrates and constitutes as the main water resource in the centre and south of Iraq.
### Table No. 2.4
**Lengths of the river reach in the basin by country (in km)**

<table>
<thead>
<tr>
<th>River</th>
<th>Turkey</th>
<th>Syrian Arab Republic</th>
<th>Iraq</th>
<th>Iran</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euphrates</td>
<td>1,230</td>
<td>41%</td>
<td>710</td>
<td>24%</td>
<td>1,060</td>
</tr>
<tr>
<td>Tigris</td>
<td>400</td>
<td>22%</td>
<td>44</td>
<td>2%</td>
<td>1,418</td>
</tr>
</tbody>
</table>

### Table No. 2.5
**Distribution of Tigris-Euphrates (Shatt-al-Arab) basin area by country (in km²)**

<table>
<thead>
<tr>
<th>River</th>
<th>Turkey</th>
<th>Syrian Arab Republic</th>
<th>Iraq</th>
<th>Iran</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euphrates</td>
<td>124,320</td>
<td>28%</td>
<td>75,480</td>
<td>17%</td>
<td>177,600</td>
</tr>
<tr>
<td>Tigris</td>
<td>46,512</td>
<td>12%</td>
<td>776</td>
<td>0.2%</td>
<td>209,304</td>
</tr>
<tr>
<td>Total basin</td>
<td>170,832</td>
<td>22%</td>
<td>76,256</td>
<td>10%</td>
<td>386,904</td>
</tr>
</tbody>
</table>

**Source:** University of Texas

### Table No. 2.6
**Contribution of each country to the overall water potential of the Tigris and Euphrates River**

<table>
<thead>
<tr>
<th>River</th>
<th>Turkey</th>
<th>Syrian Arab Republic</th>
<th>Iraq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euphrates</td>
<td>88.7%</td>
<td>11.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Tigris</td>
<td>51.9%</td>
<td>0.0%</td>
<td>48.1%</td>
</tr>
</tbody>
</table>

**Source:** Ministry of Foreign Affairs of the Republic of Turkey.
It represented the main agricultural region of Akkadian and Sumerian Civilization which appeared in the northern and southern regions of the rivers Tigris and Euphrates in the fourth millennium. Even today the two rivers constitute the backbone of Agriculture in Iraq. The annual water flow from Tigris and Euphrates is enough to meet the current and future needs of the country if exploited the proper scientific manner.

<table>
<thead>
<tr>
<th>Table No. 2.7</th>
<th>Annual discharge within the Tigris and Euphrates basin</th>
</tr>
</thead>
<tbody>
<tr>
<td>River</td>
<td>Million m$^3$/annum</td>
</tr>
<tr>
<td>Euphrates</td>
<td>31.820</td>
</tr>
<tr>
<td>Tigris</td>
<td>23.210</td>
</tr>
<tr>
<td>Tributaries of Tigris</td>
<td>29.455</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>84.485</strong></td>
</tr>
</tbody>
</table>

The underground water is very important in regions having arid and semi-arid climate as it compensates for the rainwater and river water, which are scarce in the region. The presence of underground water has largely determined the location of settlements as is the case in the western plateau and the Al-Jezira plateau. The wells of the western region are deep, while in the Jezira region the underground water is at much less depth. But the mountain region is characterized by its abundant underground water owing to heavy rains and snowfall. These waters are of great significance in the cultivation of tobacco in the summer months. The abundance of underground water has helped in the establishment of cities and villages away from the river banks.

(4) Land Resources (Agricultural land)

Iraq possesses an abundant supply of land and water resources, placing the agricultural sector at the forefront of the country’s economy. About 75% of the total population of the Iraq is directly or indirectly
dependent on agriculture. Wheat, Barley, rice, dates, cotton and sugarcane are the major crops (Map: 2.14). Iraq is the world’s leading dates producer and exporter. Agriculture constitutes 29 percent of the Iraq’s gross domestic product (GDP) and 20 percent of the country’s employment.

However, over the last 20 years the sector has all but collapsed, with agriculture levels declining by more than 2.6 percent each year from 1990. Over 50 percent of Iraq’s population affected by insecurity over food, with over half of the country’s supplies imported. A larger percentage of the people are dependent on food rations. Iraq’s agriculture sector does however have a great deal of potential, with 27 percent of the land’s population suitable for cultivation and over half of this enjoying plentiful rain levels. It is estimated that less than 50 percent of this land currently being cultivated, this leaves room for tremendous potential growth. The lack of resource utilization from a country once self-sufficient in Agriculture can be attributed to a lack of basic farm machinery and equipment, severe water shortage, low level of technology uptake and a lack of financial incentive.

The Iraqi Minister of Agriculture is looking, with the help of stakeholders, to improve the operating environment of the Iraqi agriculture sector. Technical workshop has been held through the crop technology and demonstrations program in Mosul, while the ministry has also renovated veterinary hospitals and clinics through grants.
Table No. 2.8
Land use Pattern of Iraq (2005)

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arable land</td>
<td>13.12%</td>
</tr>
<tr>
<td>Permanent crops</td>
<td>0.61%</td>
</tr>
<tr>
<td>Others</td>
<td>86.27%</td>
</tr>
</tbody>
</table>


Figure No. 2.4
The granting of a $5 million United States Agency for International Development (USAID) contract for the reconstruction and development of the industry in October 2003 to development alternatives, including for the one year Agriculture Reconstruction and Development program for Iraq (ARDI) identified the principle goals as being to support Iraqi initiatives to revitalize agricultural production, stimulate income and employment through enterprise and market development, develop rural financial organization and rehabilitate the country’s natural resources.65
(5) Nonfuel Minerals Resources

The nonfuel mineral resources of Iraq have so far proved to be relatively limited compared with those of neighboring Turkey and Iran; and only sulfur and phosphates outputs are noteworthy. In addition to byproduct sulfur from its refineries, Iraq also mines mineral sulfur at Mishraq from one of the world’s largest deposits -130 million mt, located south of Mosul- and derives a range of acids and other products from it in nearby plants. In the early 1980s Phosphate production began at Akashat (near al-Qaim, on the Euphrates near the Syrian border) was expanded several times to exploit these large reserves of the 1970s and an enlarged plant at Al-Qaim processes some of the phosphates for acids and enhanced fertilizers. Lesser quantities of salt and steel are produced, and gypsum (from which cement is produced) are plentiful.
REFERENCES


4. Ibid.


6. Ibid.p.8

7. Ibid.p.9


9. Kalha, No.5, p.9


12. Ibid.


15. The Baath party was founded in 1943 in Damascus by Michel Aflaq and Salah al- Bitar. It advocates the creation of a single Arab Socialist Nation.


20. In the international Pavalance it is called Persian Gulf but in the Arab World in general and in Iraq in particular it is called “Arabian Gulf”.

58
21. A sheet of rocks, part of broken recumbent fold which has been moved forward over the rock formations beneath and in front of it, finally covering them.


23. Ibid, p.5.


25. The term “Arab Gulf” has been used instead of Persian Gulf.


29. Kalha, No.5, p.5.


34. Kalha, No.5, p.4.


36. Lovejoy, No.31, p.16.


40. Held, No.38, pp. 263-264

41. Husain, No.01, p.98.

42. Al- Hasani, F, Modern Concepts in Defining the Climate of Iraq, Journal of geographical society of Iraq, Baghdad, Vol. 9,p.70.

46. UNEP/DEWA/GRID-EUROPE updated on 12/12/2008.
48. Ibid.
54. Lovejoy, No.31, p.20.
55. Kahla, No.5, p.32.
59. Held, No.56, p.345.
60. http://academic.evergeen.edu./g/grossmaz/stevenjd.html.
61. Hasted, No.22, p.54.
Map: 2.1

Location of Iraq in the World

Map: 2.2
Location of Iraq in West Asia

Map: 2.3

The Rivers of Iraq

Map: 2.4
Shatt –Al- Arab Region (Drainage System)

Map: 2.5
Physical features of Iraq

Source: http://www.iraqmapxl.com/physical-map.html
Map: 2.6
Climatic Regions in Iraq

Source: Al- Ani, K.S., Geography of Iraq, Baghdad, 1976.
Map 2.7
Biodiversity of Iraq

Source: http://maps.grida.no/go/graphic/regulation_of_the_tigris_and_euphrates
Map: 2.8
Mesopotamian Marshlands

Map: 2.9

Destruction of Mesopotamian Marshlands

Source: http://www.maps.grida.no/go/graphic/mesopotamian_marshlands.
Map: 2.10
Population Density of Iraq

[Map showing population density of Iraq with different color codes for different population density ranges.]

Largest Cities (2002 est.)
- Baghdad: 5,605,000
- Mosul: 1,740,000
- Al Basrah: 1,338,000
- Arbil: 840,000
- Kirkuk: 729,000
- As Sulaymaniyah: 643,000
- An Najaf: 563,000
- Karbala': 550,000
- An Nasiriyah: 535,000
- Al Hillah: 525,000

Map: 2.11

Distribution of Ethno-Religious Groups and Major tribes in Iraq

Map: 2.12
Natural Vegetation in Iraq

Source: Al Khalaf, J., Geography of Iraq, Cairo, 1959.
Map: 2.13
Soil Suitability for Agriculture

Map: 2.14

Land Use Map of Iraq