

## M. KING HUBBERT CENTER FOR PETROLEUM SUPPLY STUDIES

M. KING HUBBERT CENTER  
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COLORADO SCHOOL OF MINES  
GOLDEN CO 80401-1887

### PETROLEUM POSITIONS OF SAUDI ARABIA, IRAN, IRAQ, KUWAIT, UAE MIDDLE EAST REGION

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#### MIDDLE EAST

The Middle East (Persian/Arabian Gulf Region) is the world's oiliest petroleum province, with 64 percent of the world's claimed oil reserves and the globe's highest potential production rate capacity. The entire world depends on the plans of the five "super oily" GULF OPEC nations. Saudi Arabia alone can make or break the price of any fuel in the world whenever it wishes. The total population of only 109 million increased by 20 million in the last decade, one of the world's highest rates of population increase. Their internal oil consumption is negligible compared with their production.

Table 1: World Petroleum Supply and Disposition

This table is from the U.S. Department of Energy report: International Energy Annual – DOE/EIA-0219(98), Jan. 2000. This compilation combines data from several sources to present the oil Production/Consumption/Imports/Exports of each nation. The table is always a couple of years late due to the complexity of assembling the various data into one table. It allows direct comparison between the several factors for each of the nations of the table or other HC newsletters. The countries covered in this study are underlined.

**Table 1 World Petroleum Supply and Disposition, 1997**  
(Thousand Barrels per Day)

Region/Country	Primary Supply			Disposition			Bunkers	
	Oil Production <sup>1</sup>	Crude Oil Imports	Total Imports of Refined Petroleum Products	Crude Oil Exports	Total Exports of Refined Petroleum Products	Apparent Consumption (Including Bunkers) <sup>2</sup>	Residual Fuel Oil	Distillate Fuel Oil and Other Products
<b>Middle East</b>								
Bahrain	53	221	0	0	248	22	1	1
Cyprus	0	21	21	0	(s)	43	1	6
Iran	3,746	0	192	2,587	87	1,229	8	2
Iraq	1,176	0	0	736	21	438	0	0
Israel	(s)	225	43	0	41	230	2	2
Jordan	(s)	65	20	0	0	89	0	6
Kuwait	2,120	0	(s)	1,134	837	154	3	1
Lebanon	0	0	96	0	0	96	0	4
Oman	910	0	7	845	24	49	7	1
Qatar	621	0	0	475	81	43	0	2
Saudi Arabia.	9,089	0	0	6,861	920	1,210	100	152
Syria	571	0	16	319	36	241	0	2
United Arab Emirates.	2,479	0	235	2,153	222	326	195	4
Yemen	362	0	0	266	24	72	1	1
<b>Total</b>	<b>21,128</b>	<b>533</b>	<b>632</b>	<b>15,375</b>	<b>2,541</b>	<b>4,241</b>	<b>319</b>	<b>184</b>

<sup>1</sup> Oil production includes crude oil, natural gas plant liquids, other liquids, and refinery processing gains

<sup>2</sup> Apparent consumption includes internal consumption, refinery fuel and loss, and bunkering. Also included, where available, are liquefied petroleum gases sold directly from natural gas processing plants for fuel or chemical uses.

(s)-Value less than 500 barrels per day.

Note: Sum of components may not equal total due to independent rounding.

Energy Information Administration/International Energy Annual 1998: DOE/EIA-0219(98), Jan. 2000

Note: This is one of a series of 7 CSM/HC concise "petroleum position" summaries of the most significant oil producing countries in each of the U.S. DOE/EIA-0219 "regions". Please save for future reference/comparisons of graphs.

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JANUARY, 2001

Colorado School of Mines (CSM) / Hubbert Center (HC)

Country Oil Summary

GEOGRAPHY, HISTORY, POLITICS

Country: SAUDI ARABIA \*\* (OPEC) Region: Middle East Figure No. 1 \* (\*10K scale)  
 Population: ( 1998 ) 20 millions Main Language/Religion Arabic/Sunni Muslim  
 Independence: ( 1932 ) from Bedouins Current political status: Kingdom  
 Major Social Turmoil: ( 1990 ) US/UN Persian Gulf/Desert Storm War against Iraq over Kuwait

Saudi Arabia is the largest nation of the Middle East. All of the nation is extremely dry and there are no permanent rivers or lakes. Annual rainfall is less than 4 inches. The Rub al Khali (Empty Quarter) of SE Saudi Arabia is covered with sand dunes. Saudi Arabi is the “keeper” of Islam’s two holiest cities: Mecca and Medina, to which Muslims from all over the world try to make religious pilgrimages (Hadj). A sizable income is received from the pilgrims. Islamic law (sharia) regulates most public affairs. The King is head of state, head of government, and head of religion. The King issues decrees (traffic rules, etc) for matters not covered by the sharia. During the 1973 Egypt/Israel war, the King declared an oil embargo against the U.S. who sided with Israel against Arab Egypt. Oil shipments were also reduced to other “neutral” countries. The cutback (1<sup>st</sup> oil shock) created serious fuel shortages around the world and proved that Saudi Arabia is the critical fuel provider to the globe. The oil prices surged in the late 1970s with dramatic increase in the nation’s wealth. Saudis spent \$50 billion to supply US/UN troops with all food, water, and motor fuel during the 1990 Persian Gulf war

PETROLEUM: SAUDI ARABIA is “Mega”- “oily”:(with 25.5 % of world’s COR.)

First oil/gas discovery: Onshore ( 1938 ) Offshore: ( 1951 )  
 National oil company formed: ( 1962 ); Name: Saudi Aramco Oil Nationalized ( 1988 )  
 Joined OPEC: ( 1960 ) OAPEC: ( 1968 )  
 Oil Production: ( 1999 ) 8,595 MBD Oil Consumption:( 1999 ) 1,335 MBD  
 Exports:( 1999 ) 7,260 MBD Imports:( ) \_\_\_\_\_ MBD  
 COReserves( 1999 ) 263 BBO; CGR: 204 Tcf. Oil:R/P= 87 yrs;R/C= 575 yrs  
 Hubbert production peak: ( ) Maximum effort peak: ( ) EUR: \_\_\_\_\_ BBO  
 Non-conventional oil prod.( ) \_\_\_\_\_ MBD; “Other” oil prod. ( ) \_\_\_\_\_ MBD

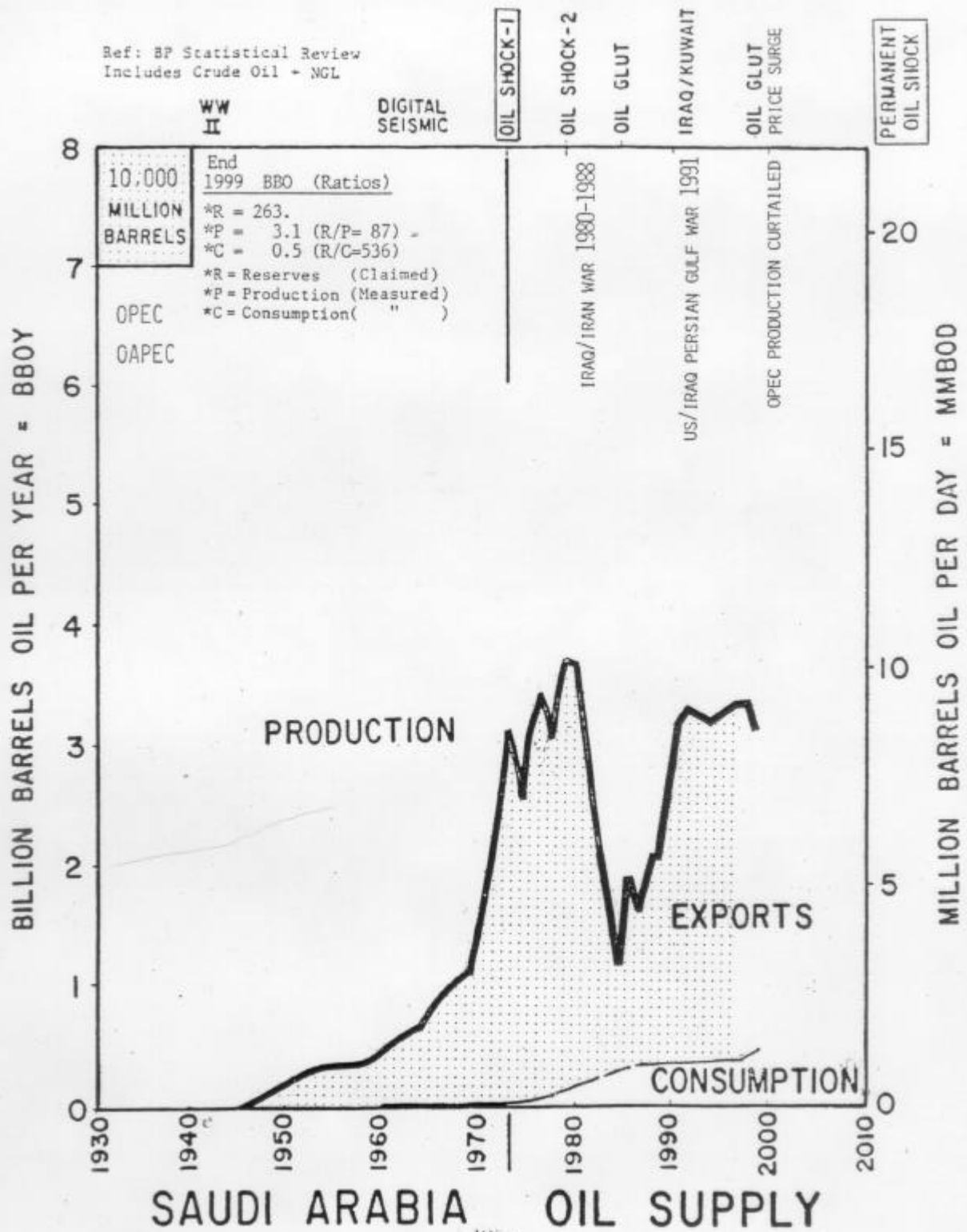
\*\* Saudi oil statistics include one-half of the “Neutral Zone” shared with Kuwait. Saudi Arabia is uniquely graced with oil and can break the global market for any fuel-anytime they wish.

Saudi Arabia’s oil business began in 1933 when Standard Oil Co. of California (now Chevron) was granted exploration and production rights in the nation. Other companies later joined SOCAL, which group became ARAMCO in 1944. The first giant field (Damman) was discovered in 1938, but large-scale production did not begin until after WW II in 1945. Ghawar, the world’s largest oil field was discovered in 1948. Many “giant” (EUR ? 0.5BBO) fields have been discovered in the country, which is not completely explored, so may have more. The oil industry provides 99% of the nation’s exports. The Saudi government bought out ARAMCO in 1988 and formed SAUDI ARAMCO.

References: (1) BP Statistical Review (annual); (2) DOE/EIA-0219 (annual); (3) CSM Hubbert Center Newsletters	Ivanhoe Date: <u>8/8/00</u> Rev: _____
Ref (1): Oil Production = crude oil + oil sands + natural gas liquids. BP = British Petroleum; O&GJ = Oil & Gas Journal; ( ) = year; MBD = 1,000 Barrels/Day; Reserves = (end year)from BP/O&GJ; OPEC = Organization of Petroleum Exporting Countries; OAPEC = O-Arab-PEC. BBO = Billion Barrels Oil; Tcf = Trillion cubic feet gas; COR = Claimed Oil Reserves; CGR = Claimed Gas Reserves; EUR = Estimated Ultimate Recovery-BBO. e = estimated. R/P = COR/Production; R/C=COR/Consumption	_____

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Ref: BP Statistical Review  
Includes Crude Oil + NGL



IVANHOE **FIGURE 1**

NOTE: VERTICAL SCALE OF THIS (10,000) GRAPH IS 5 TIMES THAT OF USUAL (2000) CSM/HC GRAPHS.

Country Oil Summary

GEOGRAPHY, HISTORY, POLITICS

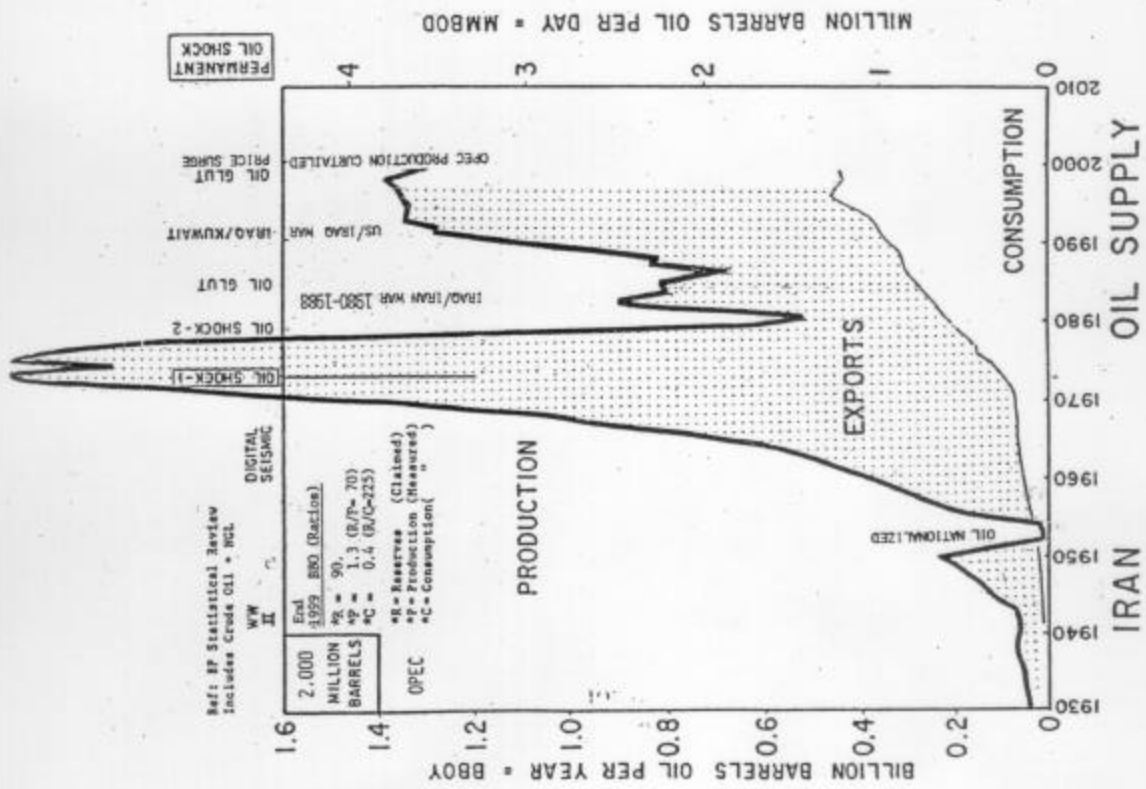
Country: IRAN (OPEC) Region: Middle East Figure No. 2 (Scale 2K)  
 Population: ( 1998 ) 63 millions Main Language/Religion Farsi = Persian/Shiia Muslim  
 Independence: ( 1979 ) from Shah overthrow Current political status: Islamic Republic (Theocracy)  
 Major Social Turmoil: ( 1980-1988 ) Iraq/Iran War – many casualties-combat ground to a halt.

Iran (Persia) is one of the world’s oldest civilizations – since before 1500 BC. Iran is the second largest and has the highest population of the Middle East. More than 40% of Iranians are less than 15 years of age – about average for the Middle East. Some 70% of Iran is uninhabited. The people are not Arabs, but descendents of Indo-European tribes and later conquerors/migrants who passed through one of the world’s great East/West travel-corridors. During WW I and WW II, Russian and British troops defended oil fields. Iran began to modernize in 1925 when Reza Khan became Shah. His son Mohammad Reza Pahlavi became Shah in 1941 and made many modernizations until he was displaced by the Iranian Revolution in 1979. The Ayatollah Khomeini, who took over from the Shah, established an Islamic theocracy, which strained relations with Western nations and damaged the economy. The theocratic government was bitterly anti-American, seizing the U.S. Embassy. The bloody Iraq/Iran war was fought from 1980-1988, resulting in 200,000 casualties. Iran imports much of its food. Petroleum accounts for 90% of Iran’s exports. In 1995 the U.S. barred all trade with Iran – fearing they were developing nuclear weapons.

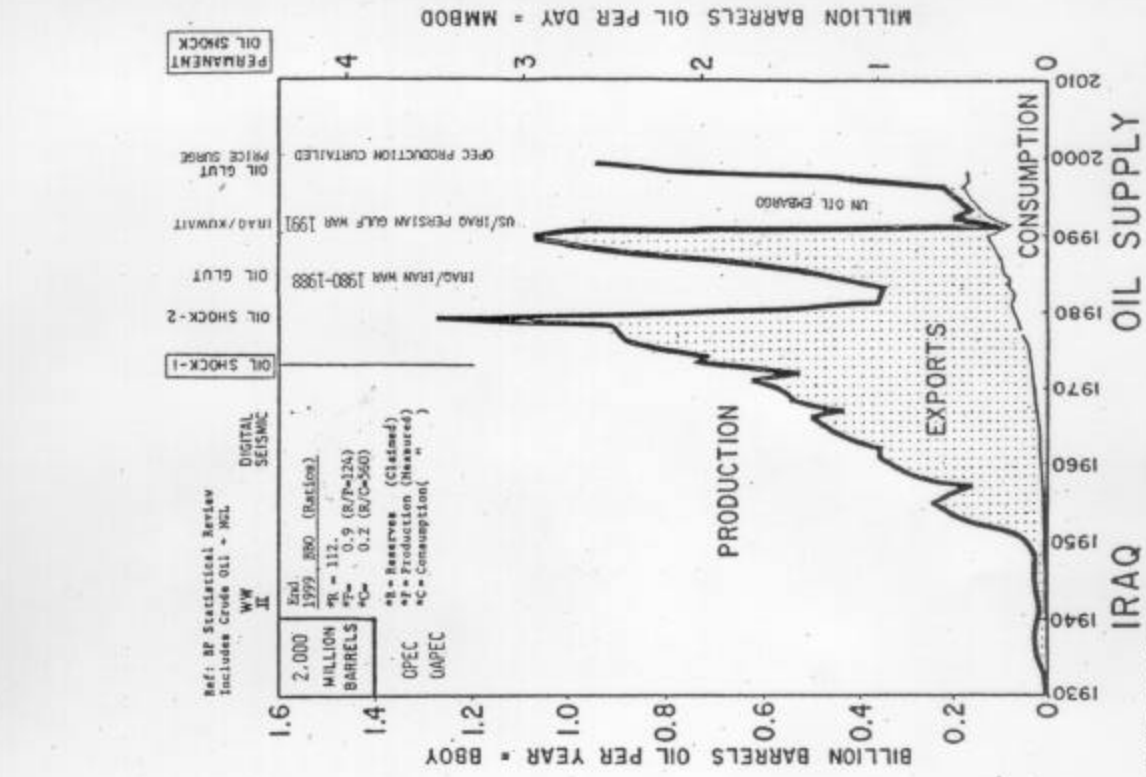
**PETROLEUM:** IRAN is “super”- “oily”:(with 8.7 % of world’s COR.)  
 First oil/gas discovery: Onshore ( 1908 ) Offshore: ( 1960 )  
 National oil company formed: ( 1951 ); Name: NIOC Oil Nationalized ( 1951 )  
 Joined OPEC: ( 1960 ) OAPEC: ( - )  
 Oil Production: ( 1999 ) 3,550 MBD Oil Consumption:( 1999 ) 1,230 MBD  
 Exports:( 1999 ) 2,320 MBD Imports:( ) - MBD  
 COReserves( 1999 ) 90 BBO; CGR: 812 Tcf. Oil:R/P= 70 yrs;R/C= 200 yrs  
 Hubbert production peak: ( - ) Maximum effort peak: ( - ) EUR: BBO  
 Non-conventional oil prod.( - ) - MBD; “Other” oil prod. ( ) - MBD

The British Anglo-Persian Oil Co. began to develop the oil fields of SW Iran in the early 1900s. Iran was invaded during WW II by both British and Soviet troops. These left after WW II ended. In 1951 the Iranian Mohammad Mossadegh tried to nationalize the Iranian oil business, but his coup failed. In 1973, 14 consortium companies formed the now defunct Oil Service Co. of Iran to manage 90% of Iran’s oil production. A series of political crises late in 1978 threw the Iranian oil business into shambles and set back the economy and oil projects for years. The global oil price surged during the Iraq/Iran war that began in 1980 to produce the “Second Oil Shock” when prices reached their maximum before Saudi Arabia ceased to curtail its production in 1985. Iran is today the #2 oil producer of the Persian Gulf – after Saudi Arabia.

References: (1) BP Statistical Review (annual); (2) DOE/EIA-0219 (annual); (3) CSM Hubbert Center Newsletters	Ivanhoe Date: <u>8/8/00</u> Rev: _____
Ref (1): Oil Production = crude oil + oil sands + natural gas liquids. BP = British Petroleum; O&GJ = Oil & Gas Journal; ( ) = year; MBD = 1,000 Barrels/Day; Reserves = (end year)from BP/O&GJ; OPEC = Organization of Petroleum Exporting Countries; OAPEC = O-Arab-PEC. BBO = Billion Barrels Oil; Tcf = Trillion cubic feet gas; COR = Claimed Oil Reserves; CGR = Claimed Gas Reserves; EUR = Estimated Ultimate Recovery-BBO. e = estimated. R/P = COR/Production; R/C=COR/Consumption	_____



IRAN OIL SUPPLY



IRAQ OIL SUPPLY

Colorado School of Mines (CSM) / Hubbert Center (HC)

Country Oil Summary

GEOGRAPHY, HISTORY, POLITICS

Country: IRAQ (OPEC) Region: Middle East Figure No. 3 (Scale 2K)  
 Population: ( 1998 ) 26 millions Main Language/Religion Arabic/Sunni Muslim  
 Independence: ( 1932 ) from Britain Current political status: Republican/Dictatorship  
 Major Social Turmoil: ( 1980-91 ) 1980-88 Invaded Iran; 1990-91 Invaded Kuwait= Persian Gulf War

Iraq is the location of ancient Mesopotamia where western civilization began about 3500 BC. Iraq's irrigation canals were destroyed by Mongol invaders in 1258, after which farming collapsed. The Ottoman Turks Empire held Iraq until British troops liberated the nation in WW I, and received Iraq as a "Mandate" from the League of Nations in 1920-1932. Political control was erratic through WW II. An army coup in 1958 overthrew the monarchy and declared Iraq a Republic. The Baath party took over the government in 1968, and Saddam Hussain became president in 1979. In 1980, during the Iranian Revolution, Iraq invaded Iran and the two nations fought a bloody war until 1988. Two years later, in August 1990, Iraq invaded and occupied Kuwait. A US/UN army was assembled in Saudi Arabia and in Feb. 1991 defeated Iraq's forces in 100 hours (=Persian Gulf/Desert Storm War). A UN oil embargo was clamped on Iraq until Nov. 1996; since then mostly ignored re oil prod. Many oil refineries were damaged during the war. Hussain continues his defiance of the U.S.

PETROLEUM: IRAQ is "super"- "oily":(with 10.9 % of world's COR.)

First oil/gas discovery: Onshore ( 1927 ) Offshore: ( - )  
 National oil company formed: ( 1961 ); Name: INOC Oil Nationalized ( 1973 )  
 Joined OPEC: ( 1960 ) OAPEC: ( 1968 )  
 Oil Production: ( 1999 ) 2,580 MBD Oil Consumption:( 1999 ) 480 MBD  
 Exports:( 1999 ) 2,000 MBD Imports:( ) - MBD  
 COReserves( 1999 ) 112 BBO; CGR: 110 Tcf. Oil:R/P= 120 yrs;R/C= 643 yrs  
 Hubbert production peak: ( ) Maximum effort peak: ( ) EUR: BBO  
 Non-conventional oil prod.( ) MBD; "Other" oil prod. ( ) MBD

Iraq is super-oily at the northern end of the Persian Gulf "mega-oil province". The British became interested in Iraq's oil potential before WW I and developed several oilfields during their 1920s Mandate. In 1950 new agreements were signed with foreign oil companies. Virtually all of Iraq's production was found before 1975. Iraq has always been one of the OPEC hawks in favor of higher prices for less oil. The country's oil income increased dramatically with the surge of oil prices from 1973-1980 when the Iraq/Iran war started. Iraq's oil production has varied erratically with their various local wars.

References: (1) BP Statistical Review (annual); (2) DOE/EIA-0219 (annual); (3) CSM Hubbert Center Newsletters	Ivanhoe
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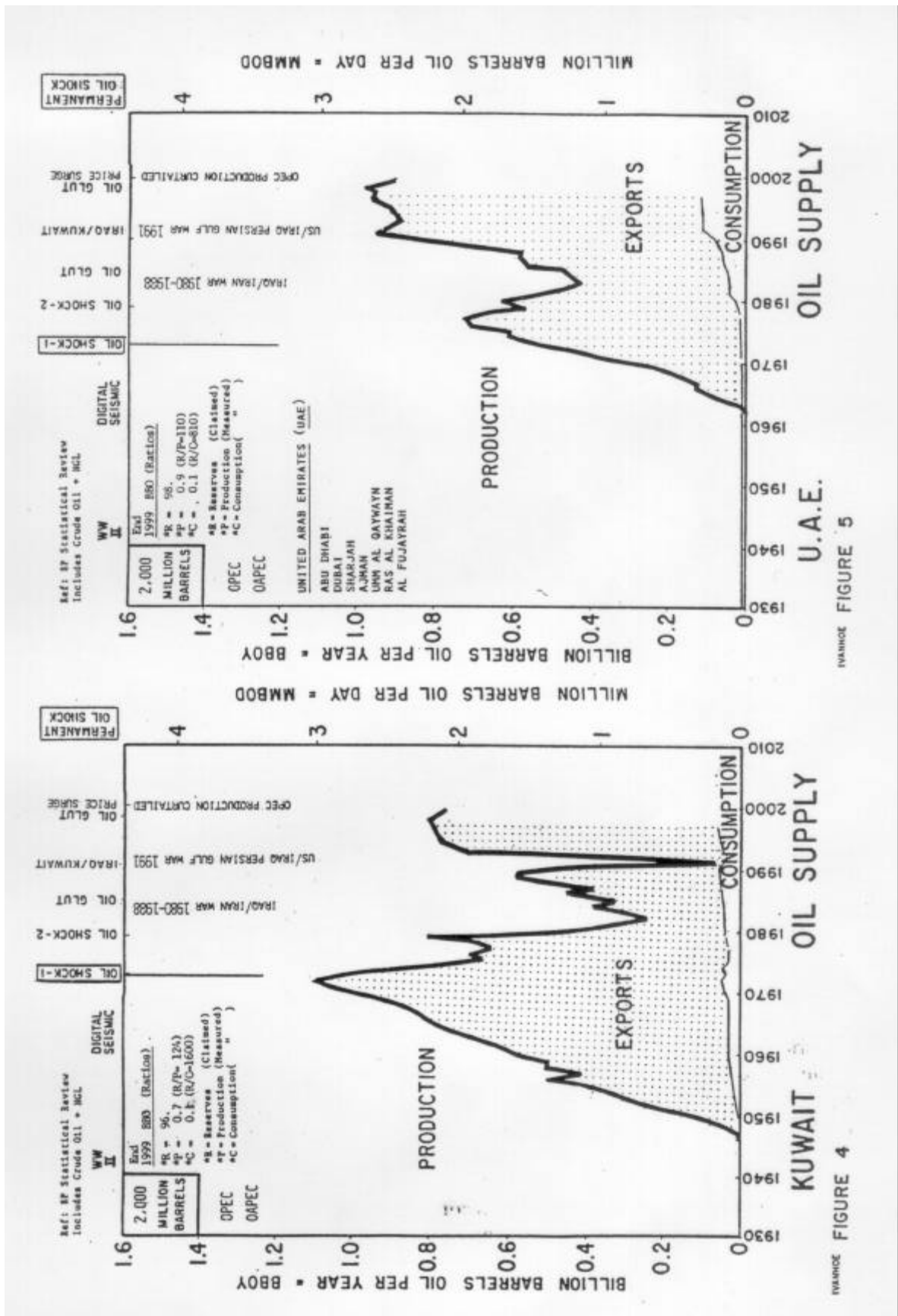


FIGURE 5

FIGURE 4



Colorado School of Mines (CSM) / Hubbert Center (HC)

Country Oil Summary

GEOGRAPHY, HISTORY, POLITICS

Country: UNITED ARAB EMIRATES=UAE Region: Middle East Figure No. 5 (Scale 2K)  
 Population: ( 1998 ) 3 millions Main Language/Religion Arabic / Sunni Muslim  
 Independence: ( 1971 ) from Britain Current political status: Emirate (Sheiks) Federation  
 Major Social Turmoil: ( - ) \_\_\_\_\_

The United Arab Emirates (UAE) is a Federation of seven independent Arab states located along the Persian Gulf east of Saudi Arabia and northwest of Oman. Each of the seven Emirates is a state of the Federation. Beginning in the mid-1800s, Britain began to protect the states from outsider's attacks. By the early 1900s, Britain had taken control of the states' foreign affairs and guaranteed their independence. Then known as the "Trucial States", they remained under British protection until 1971 when they were granted full independence. Until the discovery of oil in 1954, these desert emirates were among the most underdeveloped in the world. The discovery of oil brought sudden wealth to the region and by 1970 the UAE had one of the world's highest pro-capital incomes. Many immigrant "guest workers" are now employed in the less-desirable jobs.

**PETROLEUM:** UAE are "super"- "oily":(with 9.4 % of world's COR.)  
 First oil/gas discovery: Onshore ( 1954 ) Offshore: ( 1958 )  
 National oil company formed: ( 1975 ); Name: ADNOC Oil Nationalized ( )  
 Joined OPEC: ( 1967 ) OAPEC: ( 1968 )  
 Oil Production: ( 1999 ) 2,505 MBD Oil Consumption:( 1999 ) 345 MBD  
 Exports:( 1999 ) 2,160 MBD Imports:( ) - MBD  
 COReserves( 1999 ) 98 BBO; CGR: 212 Tcf. Oil:R/P= 107 yrs;R/C= 780 yrs  
 Hubbert production peak: ( - ) Maximum effort peak: ( - ) EUR: \_\_\_\_\_ BBO  
 Non-conventional oil prod.( ) - MBD; "Other" oil prod. ( ) - MBD

The UAE is one of the five "super-oily" OPEC countries of the Persian/Arabian Gulf, (the "Gulf Five").

The economy depends on the production of petroleum, which is produced in the states (Emirates) of Abu Dhabi; Dubai; and Sharjah. The UAE oil income and problems followed those of the rest of the Persian Gulf OPEC oil producers after the "first oil shock" in 1973. With the low population of 2 millions, the UAE's oil consumption is a negligible part of their production.

References: (1) BP Statistical Review (annual); (2) DOE/EIA-0219 (annual); (3) CSM Hubbert Center Newsletters	Ivanhoe
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HC#2001/1-9

The Oilman's Column [#6] - by L. F. Ivanhoe

A) PERSIAN/ARABIAN GULF WARS

The 1986 "oil glut" confirmed that Saudi Arabia can make or break the global price of any fuel in the world. The only question is WHO CONTROLS SAUDI ARABIA?

The U.S./U.N. 1991 "Persian Gulf/Desert Storm" war against Iraq was made feasible because the U.S. armed forces had the cooperation of Iraq's neighbor Saudi Arabia. The Saudis allowed the U.S. to use their land for military needs, kept the U.S. troops apart from their Muslim citizens, and provided all fuel, food, and water free to the troops (worth \$50 billion). Otherwise the supply logistics would have overwhelmed military planners. There is no guarantee that Saudi Arabia will cooperate with the U.S./U.N. in any future Persian Gulf "oil wars".

B) FOREIGN COUNTRIES' OIL

Government/state-owned oil companies supply 75% of the earth's oil production, and control 90% of the world's oil reserves. All oil-importing nations must do business with them, whether they wish to or not.

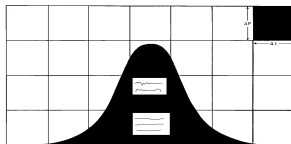
The foreign nations that now supply 55% of the U.S. oil consumption are sovereign foreign entities that are not subject to U.S. laws. U.S. oil companies operating abroad have only those legal rights that the local governments wish to honor. Laws, taxes, procedures, or contracts may be changed on whims and there is nothing that the locally operating oil companies can do about it. Virtually all minerals/petroleum rights belong to the sovereign governments and not to the surface owner as in most of the lower 48 U.S. states. U.S. oil companies must follow any local dictates regarding oil production/exports/etc. regardless of what the U.S. public or government may need or desire.

C) OIL PRICE SHOCKS NO. 1 (1973) AND NO 2 (1979)

The 1970s oil price shocks were relatively easy for the world to handle. By lucky coincidence, 95 "GIANT" oil fields discovered on- and offshore worldwide by new "digital seismic" techniques during the 1960s were brought on stream by new continental shelf sea water production technologies at just the right time during the 1970s – which brought the OPEC nations to heel. The public and most economists mistakenly believe that these critical fields were found by increased oil exploration after the 1973 oil embargo. We do not now have these "GIANT" (EUR ? 0.5BBO) oil fields in reserve to call on in any production crisis. The "exploration revolution" occurred in the 1960s which was followed by the world's greatest exploration effort 1974 to 1985; unfortunately few new GIANT fields were found during that 11-year period.

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H.C. NEWSLETTER



**The M. KING HUBBERT CENTER FOR PETROLEUM SUPPLY STUDIES**

located in the Department of Petroleum Engineering  
Colorado School of Mines  
Golden, Colorado

The Hubbert Center has been established as a non-profit organization for the purpose of assembling and studying data concerning global petroleum supplies and disseminating such information to the public.

The question of WHEN worldwide oil demand will exceed global oil supply is stubbornly ignored. The world's oil problems, timing and ramifications can be debated and realistic plans made only if the question is publicly addressed. A growing number of informed US and European evaluations put this crisis as close as now to 2014. The formation of this center is to encourage a multi-field research approach to this subject.

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Notes:

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