

INTERNATIONAL MONETARY FUND

April 27, 1948

To: Members of the Executive Board
From: The Secretary
Subject: Oil in the Middle East

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INTERNATIONAL MONETARY FUND

Research Department

Oil in the Middle East

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1. The Importance of the Middle East in Oil Supply

Oil is one of the basic commodities in short supply in the world today. There was indeed a substantial increase in production, raising its level in the first six months of 1947 to 145 percent of 1938, but consumption has also increased considerably, and is now higher than during the war years. This is due to several factors including urgent rehabilitation needs, the effects of war-time industrial expansion, notably in the United States, economic progress in the raw material producing countries, the rapid mechanization of agriculture, the greatly extended use of oil in shipping and the universal shortage of coal. This expansion in demand is likely to continue owing to the presence in many countries of a large pent-up demand for petroleum products which has not yet become effective, either because of the present inability of these countries to pay for all their import needs, or for lack of the necessary consuming facilities (e.g. motor vehicles, tractors, oil-burning installations, etc.). Further conversions from coal to oil are also bound to give an added impetus to the expansion of demand.

The present inability of the oil industry to meet the expanded demand is not due to a lack of oil reserves. Indeed never before in the industry's history have established and prospective underground resources been greater. What is lacking are adequate pipelines, refineries, storage facilities, tankers etc. Refineries in particular are the tightest bottleneck in the industry. Some were destroyed or damaged during the war and new construction is difficult in the face of continued shortages of materials and equipment, skilled personnel, transport bottlenecks and the like. The inadequate number of tankers may well be the second worst bottleneck in the industry, and explains the rapid development of certain sources of supply nearer the distributing centers as well as the eagerness of the oil companies to build long pipelines which would save them a long tanker haul.

The relative importance of Middle East production has to be studied against this background of shortages and bottlenecks.

The importance of the Middle East as a producer of oil is rapidly assuming substantial proportions. Before the last war it accounted for about 5 per cent^{1/} of world oil supplies, by the first half of 1947, the proportion had increased to 10.1 per cent^{1/}. The importance of the

^{1/} The Oil Forum, New York, Sept. 1947 p.227

area is, however, much greater as an exporter than as a producer of oil. In 1946 about 32 per cent^{1/} of the total net exports of all producing areas came from the Middle East. This contrast is due to the fact that the U S which produces over 60 per cent of the world oil supplies consumes nearly as much as it produces^{2/}, while Middle East consumption is much lower than its production

This rapid development is of recent origin, for although petroleum has been known in the Middle East for a long time, the region began to make an important contribution to world supplies only after the first world war, further progress was made during and after the second world war. In the first war the British Government, desirous of securing a supply of oil for its fleet which had been converted from coal burning to oil burning, stepped up production in Iran. During the last war it was mainly American initiative which enhanced the relative importance of the Middle East. Consumption in the United States has risen to record levels, while its proven reserves, owing to shortages of men and materials and to earlier intensive exploitation, have not been increasing proportionately. Moreover it was to the advantage of the Allies to develop sources of supply nearer to the main theatres of warfare, and also to expand supplies alternative to those from the East Indies, which were threatened and later occupied by Japan. These considerations led to the rapid development of Saudi-Arabian production, which is still expected to increase considerably during the next few years.

The rapid increase in U S domestic consumption has considerably reduced the margin available for export. In 1938 net U S. oil exports amounted to 382,000 barrels^{3/} daily (19.1 million tons a year), in 1946

1/1947 World Oil Atlas, Houston, Texas -- Table on p.8

2/Latest statistics show an import surplus of oil in the United States - Petroleum Press Service, London, August 1947.

3/The number of barrels in a metric ton varies, according to the density of the oil, between 6.5 and 7.8. The U S. Bureau of Mines uses the following rates of conversion for Middle Eastern Oil.

	<u>Barrels per ton</u>		<u>Barrels per ton</u>
Bahrain	7.328	Iraq	7.481
Egypt	7.003	Saudi Arabia	7.417
Iran	7.566		

(see World Oil Atlas June 30, 1947)

A rough average rate of conversion, equivalent to 7.3 barrels per ton is used here for general comparisons.

they had fallen to 44,000 barrels (2.2 million tons a year). Carribean exports had increased in the meanwhile from 568,800 barrels daily (28.4 million tons a year) to 1,026,300 (51.3 million tons a year), but the destruction during the war of the oil fields and refining facilities of the East Indies, which used to be an important exporting region, and the increasing demand for oil required a much larger volume of exports. It was fortunate therefore that between 1938 and 1946 Middle East production was more than doubled.

Exports from the Middle East rose from 260,000 barrels daily (13 million tons a year) in 1938 to 545,400 barrels (27.3 million tons) in 1946 and ranked second (after the Carribean) among the world's exporting areas. In 1946 about 60 per cent of Middle East oil exports went to Oceania and the Far East and the rest went mainly to Europe. In the near future, when oil production in the East Indies returns to prewar conditions and is further expanded, the demand of Oceania and the Far East for Middle East oil will decrease, while increasing consumption in the Western Hemisphere will further diminish its available margin for export to Europe. This would leave the Middle East as the main source of supply for Europe and explains the eagerness of the oil companies to construct pipelines from the Middle East fields to the Mediterranean.

Middle East oil production in 1938 was estimated at 16 million tons, of which 10.4 million came from Iran and 4.5 from Iraq. Transport limitations however made it impossible to raise production to the maximum possible level. Other possible reasons for the limitation of production were the interest of the British Government, which had a predominant control over the Iranian concession, in a long-term secure source of supply for the Navy, and the desire of some of the large companies holding other concessions in the Middle East (and elsewhere) to maintain world prices of oil by limiting supplies and exports. The long term policy of oil conservation should also be borne in mind.

A comparison between the ratios of output to reserves in the U.S. and the Middle East shows clearly the great expansion which is possible in the Middle East production. Proven reserves in the Middle East amount to 27 billion barrels, i.e. from 3 to 7 billion barrels more than the U.S. reserves, and as exploration has been carried on much more intensively in the U.S. than in the Middle East, the chances that current estimates of reserves should be revised upwards are much greater in the Middle East than in the U.S. On the other hand in 1946 production in the U.S. was about 8 times as great as that of the Middle East. It is estimated that by 1950 or 1951 when the projected pipelines from Iran, Iraq, and Saudi Arabia are completed, Middle East production, which had risen from 16 to 34 million tons between 1938 and 1946, will increase to over 80 million tons, the main increases being in Saudi Arabia (from 8 to 30 million tons), Iran (from 19 to 25 or 30 million tons), Kuwait (from 1 to 10 million) and Iraq (from 4 to 13 million). Even this total could be surpassed if more adequate transport facilities became available.

Oil consumption in the Middle East is at a very low level and even after due allowance for the possibilities of industrialization and economic and social development in that area, the margin for exports will remain very large. Middle East consumption was estimated in 1938 at 1.7 million tons and in 1945 had risen to about 5 million tons. This increase however was mainly attributable to war conditions, a large part of the increased consumption of Egypt, more than 2 million tons, was used for the transportation of allied materials, etc and for the conversion of most of the railway system and many of the factories to oil consumption owing to the difficulties of importing coal. Once the world shortage of coal disappears, the railways and the factories may go back to coal, but even if they remain oil-consumers, local consumption will remain small relative to production, and as the projected developments progress, the margin available for export will increase considerably.

2. Iran

A. Concessions

1) Anglo-Iranian Oil Company

Oil was first discovered in Iran at the beginning of the present century by an Australian explorer, Knox D'Arcy. In 1901 he obtained, in exchange for 16% of the profits, a 70 year concession for oil exploitation covering the whole Iranian territory with the exception of the five northern provinces on the Caspian Sea. Owing to several factors the D'Arcy Company was about to fail when the British Admiralty, wishing to convert from coal burning to oil burning, had the D'Arcy Company re-floated by the Burma Oil Company, which founded the Anglo-Persian Oil Company (later renamed Anglo-Iranian Oil Company) in 1909. In 1914 Mr. Winston Churchill considered it advisable that the British Government should have some control over the Navy's oil supplies, and the Government therefore gradually bought an increasing part of the Company's share capital.

Following some financial troubles with the oil company, Iran cancelled this concession in 1932, but in April 1933 after protracted negotiations and mediation by the League of Nations a new agreement was signed. This agreement, still in force, includes the following provisions

- (1) The concession area is reduced to 100,000 square miles, about 1/2 the previous area, to be finally delimited by the end of 1938. The concession area now runs along the west and south-west borders of Iran.
- (2) The concession is for the period May 29, 1933 to December 31, 1993, an extension of 22 years beyond the old concession.
- (3) The company has a non-exclusive right to construct and own pipelines.
- (4) The company shall pay to the Iranian Government yearly.
 - (a) 4 gold shillings a ton on oil sold in Iran or exported,

(4) continued

- (b) A sum equivalent to 20% of any amount in excess of £ 671,250 (equivalent to 5% on the ordinary stock outstanding in 1933) actually distributed to ordinary stock holders in any year, whether by way of dividend or as a distribution of reserves in excess of the company's reserves on December 31st 1932,
- (c) For the first 15 years of the concession, in exchange for complete exemption from other Iranian taxation present or future, a tax of 9 d per ton of oil on which royalty is payable up to 6 million tons and 6 d per ton above that figure, subject to a minimum payment of £ 225,000, and for the second 15 years, of 1 s per ton up to 6 million tons and 9 d per ton in excess of that figure, with a minimum of £ 300,000 per annum. At the end of 30 years an amount on similar future payments is to be reached.

As a protection against possible depreciation of sterling the sums payable for tonnage, royalty and tax obligations are to be increased proportionately to any rise in the price of gold in London above £ 6 per ounce troy.

- (5) On expiration of the concession the company's property shall revert to the Iranian Government, and during the 10 years preceding the expiration the company shall not sell or export that property from Iran.
- (6) On expiration of the concession or its surrender by the company 20% of the reserve accumulated after December 31, 1932 shall go to the Iranian Government.
- (7) For the sale of oil in Iran, Gulf of Mexico or Rumanian prices -- whichever may be lower -- shall be taken as the basic price. The price of oil sold to the public at the refinery shall be 10% less than the basic price and to the Iranian Government 25% less.

The company's present capital amounts to about £33 million in £ 1 shares of which 7.2 million are 8% cumulative first preference stock, 5.5 million are 9% cumulative second preference stock and 20.1 million are ordinary stock. Out of this the British Government owns £ 11.25 million ordinary stock and £1,000 first preference stock. As ordinary stock entitles the holder of £ 1 ordinary share to two votes while the holder of £ 5 preference shares is entitled to only one vote, the British Government thus controls over half of the Company's voting power. Moreover it is entitled to appoint directors who have the right to reject resolutions of the board on certain subjects, other directors enjoying the right to appeal to the Government.

2. Other Concessions

In 1907 the Anglo-Russian Agreement, known as the Grey Izvolsky agreement divided Iran into an English and a Russian sphere of influence, the latter including the five northern provinces of Azerbaijan, Gilan, Mazandaran, Asterabad and Khorassan. In 1921, according to a Russian-Iranian Agreement, Iran undertook not to grant any concessions in those provinces without Russia's consent. Russia tried repeatedly to exploit the oil reserves in its sphere of influence, and English, American, Dutch, and French interests obtained concessions in the area between the northern provinces and the Anglo-Iranian concession area, but for various reasons they all had to give up their concessions and at present the Anglo-Iranian Oil Company remains the only oil company in Iran.

During the last war Russia tried again to obtain a concession in these regions and on April 4, 1946 an agreement was signed providing for the following

- 1) A Russian-Iranian Oil Exploiting Company to be formed for 50 years.
- 2) During the first 25 years the stock of the company will be divided between the Russians and the Iranians in the proportion of 51 to 49 and in the following 25 years it will be divided equally between them.
- 3) The profits of the company will be divided proportionately to the holdings.
- 4) The concession granted to this company covers almost the whole area of the five northern provinces.
- 5) Iran's contribution will consist of the oil fields while the Russian contribution will consist of the necessary equipment.
- 6) At the end of the 50 years the Iranian Government can buy the Russian shares or review the contract.

This agreement does not become effective before ratification by the Iranian parliament, which has so far not been forthcoming. The concession is reported to have been strenuously opposed in Iran, the opposition being based no doubt in part on the political and international implications of the concession as well as on the desire of Iran to limit the growth of foreign investment in the country.

B. Production

The most important oil fields in Iran are those of Masjid-es-Suleiman, Haft-Kel, Gash-Saran and Agha-jari. Conditions of production are most favorable in the Haft-Kel field, (one of the largest in the world, and second only to the East Texas field) which has lately been producing at the rate of 9 million tons per year. The number of wells which produced a total of 9 million tons in 1946 was only 24, while in Texas in the same year, 24 thousand wells produced 17 million tons. Moreover oil is often found at a depth of only 300 feet.

Iran's production since 1930 was as follows

IRAN OIL PRODUCTION
(in millions of tons)

<u>YEAR</u>	<u>AMOUNT</u>	<u>YEAR</u>	<u>AMOUNT</u>
1930	6.0	1940	8.3
1931	5.8	1941	5.5
1932	6.5	1942	8.4
1933	7.2	1943	9.0
1934	7.7	1944	11.7
1935	7.6	1945	16.8
1936	8.2	1946	19.2
1937	10.3		
1938	10.4		
1939	8.4		

Production, which had steadily been rising in the thirties, dropped sharply during the war owing to the hazards of transportation and the shortage of tankers. It quickly recovered after the war and in 1946 reached a record level equivalent to almost twice the maximum prewar yearly production.

C. Anglo-American Oil Agreement

In the past, Iranian oil production, despite the possibilities of expansion, was purposely kept low, the capacity of the pipeline to Abadan and of the Abadan refinery was limited, and oil in excess of the desired quantities was thrown back into the wells. The agreement of December 26 1946, between the Anglo-Iranian Oil Company on the one hand, and the Standard Oil Company of New Jersey and Socony Vacuum on the other, providing for the joint financing of a pipeline from Iran to the Mediterranean and for the sale of large quantities of oil (reported to be about 100,000 barrels daily) to the American Companies over a 20 year period is therefore of special importance. The pipeline, about 900 miles long and 30 inches in diameter and of a capacity of 300,000 barrels daily will be constructed by the Middle East Pipeline Limited, formed in March 1947 and owned 50% by Anglo-Iranian, 40% by Jersey and 10% by Socony Vacuum. It will end on the Mediterranean sea shore and thus avoid the long tanker haul. The American Companies are interested in the deal because it would enable them to use their large distributing capacity overseas despite the declining trend of American exports. The U K will benefit from increased production and will get dollars from sales to the American Companies. It is estimated that after the completion of the pipeline by 1950 or 1951, production in Iran will reach a figure of 25 to 30 million tons a year, an increase of 6 to 11 million tons over the 1946 record.

D

Receipts on account of oil sold locally can be estimated as follows. Iran's consumption in 1946¹ was probably about 2 million tons. The distribution of consumption between the Government and the general public is not known² but as prices in Texas during 1946 averaged about \$1.5 per barrel or \$11 per ton³, it can be roughly estimated that local sales yielded the equivalent of \$17 or 18 million to the company.

From these calculations it would seem that the company's receipts on account of local sales roughly covered its local expenditure on production, and that Iran's net foreign exchange receipts in 1946 on account of oil were therefore equivalent to the receipts derived from royalties, taxes and share of profits. It is difficult to forecast whether this rough equivalence between local costs of production and the proceeds of local sales will be maintained. There are four factors involved, namely the level of wages, the price of oil, the volume of production and the volume of consumption. In the next two or three years the extra costs involved in laying the pipeline and expanding production will almost certainly result in a net excess of foreign exchange receipts. For a few years after 1950 it is probable that Iran will still have a favorable, though smaller, balance on these items. This view is based on the fact that production will increase considerably while there is no ground for assuming a rapid increase in local consumption.

A rough estimate of Iran's receipts of foreign exchange on account of oil in 1951 - after the projected increase in the Anglo-Iranian Concession area takes place, and assuming no other addition to oil production in Iran - would place them at about \$45 to \$50 millions.

For estimating the economic significance of the oil industry for Iran, it is relevant to compare these figures with the national income of the country, which in 1946 was officially reported to the International Monetary Fund as \$1,200 million. This figure was however computed at highly inflated local prices and the purchasing power of Iran's foreign exchange receipts was much higher than the above comparison would suggest. These receipts also represent a substantial proportion of the Government's total ordinary and extra-ordinary receipts - about 10 per cent; if they were not available, taxation would have been much heavier. The multiplier effect should also not be forgotten the oil industry is the largest industry in Iran and its effects on total employment and production extend far beyond the industry itself. It should also be noted that Iran's balance of trade is highly deficitary so that receipts of foreign exchange on account of oil vitally contribute to Iran's ability to pay for imports.

Iran's oil industry is also highly beneficial to Great Britain which owns most of the ordinary shares of the Anglo-Iranian Oil Company. The U.K. gets not only its share of dividends, but also the proceeds from taxation on the company's profits. The U.K. Government's share of the

¹/No figures are available at present for 1946 consumption; but judging from the trend of consumption in previous years reported in the Petroleum Almanac of 1947, 2 million tons seems a reasonable estimate.

²/For prices charged to the Government and the public see (7) on page 5.

³/The price of Roumanian oil at this time had little practical significance.

1946 profits can be estimated at \$14 million and income tax on the company's 1946 profits was over \$10 million. Total U.K. Government receipts of \$24 million on account of the Anglo-Iranian Oil Company's activities in 1946 may be compared with \$30 million accruing to the Iranian Government. Another advantage to the U.K. is its ability to pay for its purchases of oil from the Company in sterling. The Agreement of 1946 for sales to American companies will also increase U.K. dollar receipts.

3. Iraq

A. Concessions

1) The Iraq Petroleum Company.

Before the first world war German companies, actively interested in the oil of Mesopotamia (Iraq), obtained concessions for exploration from the Ottoman Empire. English Companies (Royal Dutch Shell and Anglo-Iranian Oil Company) were also interested in the oil of the area and in 1912 by an agreement between the British and the German Companies the Turkish Petroleum Company was formed, jointly owned by the National Bank of Turkey (50 %), the Deutsche Bank (25%) and the Royal Dutch Shell (25%). In 1914 the Anglo-Iranian Company bought all the shares of the National Bank of Turkey, and in 1920, following the San Remo Agreement, France obtained the shares of the Deutsche Bank and the Compagnie Francaise des Petroles, owned 40% by the French Government, was instituted to administer the French share. In 1928 one-half of the shares owned by the Anglo-Iranian Oil Company passed to United States ownership. Then the four companies gave up 5% of the total shares to Mr. Gulbenkian in return for his services in securing the concession.

The Turkish Petroleum Company, now called the Iraqi Petroleum Company, is thus owned as follows:

23.75 per cent	Anglo Iranian Oil Company
23.75 per cent	Royal Dutch Shell
23.75 per cent	Near East Development Corporation (at present owned equally by the Standard Oil of New Jersey and Socony Vacuum).
23.75 per cent	Compagnie Francaise des Petroles
5 per cent	Mr. Gulbenkian.

Turkey, which was claiming the provinces of Mosul and Baghdad, gave up this claim in 1926 in exchange, among other things, for a yearly payment until 1951, equivalent to 10 per cent of the royalties payable to Iraq.

The final agreement with the Iraqi Petroleum Company signed in 1931 gave the company a concession extending to the year 2000 and the sole right to exploit all lands situated to the east of the Tigris covering an area of 32,000 square miles. The agreement also provided for the

construction by the company of a pipeline of a capacity of not less than 3 million tons to the Mediterranean to be completed before the 31st December 1935. The company undertook to pay to the Government forthwith and until regular export from the Mediterranean sea-board began, a sum of £ 400,000 (gold) annually. Of this sum £ 200,000 was to be advanced against future royalties and £ 200,000 was dead rent not recoverable by the company. Royalties were fixed as follows:

1. Until a date 20 years after the completion of a pipeline to a port for export shipment the rate shall be 4 s. (gold).
2. For each period of 10 years after the said date the rate of 4 s. (gold) shall be increased or reduced by the percentage by which the profit or loss shall be greater or less during the 5 years immediately preceding such period than during the first 15 years of the aforesaid 20 years provided that.
 - (a) Profit or loss shall mean the difference between the average market price per ton and the average cost per ton of producing, transporting, refining and distributing.
 - (b) "average market price per ton" shall mean the total prices obtained for the products of the said substance divided by the total tonnage of the products and "average cost per ton" shall mean the estimated total cost of producing, transporting, refining and distributing the said substance, divided by their tonnage.
 - (c) The minimum rate shall be 2 s. (gold), and the maximum rate 6 s. (gold). The company guarantees a royalty payment of 4 s. a ton on a minimum production of 2 million tons for a period of 20 years after the pipeline is opened.

In commutation of taxes the company also undertook to pay a sum of £ 60,000 (gold) or the first 4 million tons on which royalty is payable and £ 20,000 (gold) and pro rata on each subsequent million tons.

2) Other Concessions

In 1932 the British Oil Development Company (owned 50.55% English, 25.45% Italian, 12% German and 12% Franco-Swiss) was granted a concession over all lands in the Mosul and Baghdad provinces west of the River Tigris and north of the 33rd parallel. This company undertook to build a pipeline to the Mediterranean and to export by 1939 at least one million tons annually. Exploration began in 1933 and oil was found at Quayara. In 1936 it was estimated that 2 million tons could be produced annually if proper transportation facilities were available. However the Italian war in Abyssinia delayed the carrying out of the pipeline project and finally the shares of the British Oil Development Company passed to the Mosul Petroleum Company, a subsidiary of the Iraq Petroleum Company, which came to an agreement with the Iraqi Government to postpone production until two years after the cessation of hostilities in exchange for a non-interest bearing loan to the Government.

The Basra Petroleum Company obtained a concession in 1938 covering all lands situated south of the province of Baghdad. This company is still in the exploratory stage. It pays the Government of Iraq a dead rent of £ 200,000 (gold) annually and has eventually to make satisfactory arrangements for the transport of a million tons of oil per year

The Khanaqin Oil Company was formed in 1925 to acquire and operate the concession held by the Anglo-Iranian Oil Company over the "Transferred Territories" (a strip of land along the Iraq-Iran frontier, transferred from Iran to Iraq when the Turko-Persian frontier was delimited shortly before World War I). This company produces oil from the Naft-Khanah field and delivers it through a 25 mile pipeline to a refinery near Khanaqin, the entire output of which is consumed locally.

These three companies also pay a royalty of 4 s. (gold) per ton of oil exported or sold in Iraq and with the exception of the Khanaqin Oil Company pay the same rate as the Iraq Petroleum Company in commutation of taxation. The government is also entitled to take up to 20% of the total oil produced by the Mosul Petroleum and Basra Petroleum Companies free of charge for local consumption.

B. Production

Production in Iraq has so far been dependent almost entirely on the Kirkuk field, 1,200 feet deep, 60 miles long and 2 miles wide. Only 15 of the 70 wells drilled in that field are used, and their use is not continuous. As in Iran, production is strictly limited by the capacity of the pipeline and any excess oil is sent back to the wells. The American Geologist, de Golyer, in 1944 estimated the reserves of the Kirkuk field at 700 million tons. Other fields are those of Quayara, Mosul, discovered by the British Oil Development Company, (producing 30,000 tons per year) and Khanaqin (producing 120,000 tons per year but capable of great development).

Production since 1930 was as follows

<u>IRAQ'S OIL PRODUCTION</u>			
<u>Year</u>	<u>(in millions of tons)</u>	<u>Year</u>	<u>(in millions of tons)</u>
1930	.1	1940	2.4
1931	.1	1941	3.9
1932	.1	1942	2.3
1933	.1	1943	3.4
1934	1.0	1944	4.0
1935	3.7	1945	4.7
1936	4.1	1946	4.5
1937	4.5		
1938	4.2		
1939	3.9		

Production was greatly curtailed during the war owing to the difficulties of transportation from the Mediterranean, and to Vichy control of Syria and Lebanon, but since 1945 the rate of production has been at or above prewar levels.

At present there are two pipelines 12 inches in diameter extending from Kirkuk to Haifa and from Kirkuk to Tripoli (Lebanon). Two other pipelines of 16 inches in diameter and following the same routes to Haifa and Tripoli, are expected to be completed early in 1949 (Haifa) and in the course of 1950 (Tripoli). This will increase the capacity of the pipeline system from Kirkuk to the Mediterranean from 4 million tons to 13 million tons a year. The Standard Oil of New Jersey, one of the American partners in the Iraqi Petroleum Company, also reports that I.P.C. is considering construction of an additional pipeline of 30 to 32 inches in diameter from Kirkuk to the Mediterranean. This pipeline would have a capacity of 270,000 barrels a day (13.5 million tons a year) and would increase the total possible supply from Iraq to over 27 million tons a year.

The Iraq Petroleum Company increased its capital during 1945 and 1946 from £ 14.5 million to £ 39.5 million in order to finance the pipelines and other production developments. The Basra Petroleum Company has also in 1946 increased its capital from £ 500,000 to £ 3,220,000 to finance future developments.

C. Refining.

Apart from the small Khanakin refinery with a capacity of 250,000 tons a year, there is no refinery of any importance in Iraq. Much of the oil consumed locally is imported from the refinery of Abadan in Iran. The Iraqi Government is now planning the erection of a State Oil refinery. The scheme involves the use of oil from Kirkuk and Quayara and would provide for the production of aviation spirit, motor spirit, kerosene, gas, diesel and furnace oil and asphalt required by the domestic market. At present most of the refining of Iraqi oil is done in the refinery at Haifa, Palestine, whose capacity was 2 million tons before the war and was expanded to 4 million during the war. It has been decided in 1947 to increase the size of this refinery to a capacity of the order of 9 million tons a year and to erect a lubricating oil manufacturing plant with an annual capacity of 250,000 tons. A much smaller part of Iraq's oil, 200,000 tons per year, is refined in Tripoli (Lebanon).

D Iraq's Receipts on Account of Oil

Iraq's receipts of foreign exchange on account of oil production include the royalties, the sums paid in return for tax commutation and the difference between local cost of production and the value of local sales of oil.

The royalty amounts to 4 gold shillings a ton on oil sold in Iraq or exported. An examination of the Government's budget does not reveal the exact method of adjusting the royalty to current gold prices. As the agreement providing for this royalty was concluded before the 1931 depreciation of sterling, it is reasonable to assume that royalties are based on the value of the British gold sovereign which is now equivalent to about \$8.23 or more than double the value of the paper pound. According to these figures the royalty would now be equivalent to about \$1.65 per ton.

Commutation of taxes is given in exchange for payment of £60,000 for the first 4 million tons and £ 20,000 for each subsequent million tons. On the basis of a similar correction, this would be equivalent to \$495,000 and \$165,000 respectively.

If we make the same assumption for local costs of production in Iraq as in Iran, namely \$1.00 per ton^{1/}, and consumption of oil in Iraq in 1946 is assumed to amount to 700,000 tons, sold at reduced prices probably yielding \$7 or \$8 per ton, we get the following figures

Local costs of production	\$ 4.5 million
Value of local sales	5.3 million

Which mean that the company had a surplus
of local currency equivalent to \$.8 million

This latter figure should be deducted from the value of royalties and taxes paid to the Government in order to obtain the net figure of foreign exchange received by Iraq.

The following computations show Iraq's estimated foreign exchange receipts on account of oil in 1946

(in millions of U.S.Dollars)

Royalties on 4.5 million tons at \$1.65 per ton	7.4
In commutation of taxes - on the first 4 million tons	.5
or the balance of 500,000 tons	<u>.1</u>
	8.0
less difference between the value of local sales and local costs of production	<u>.8</u>
TOTAL	7.2

Local costs incurred on the new pipelines, the laying of which had begun in 1946, should also be added to this total. This, together with the initial costs of expanding production, will temporarily increase Iraq's foreign exchange receipts on account of oil. By 1950 when the construction of the two 16 inch pipelines is completed and total production is raised to about 13 million tons annually, Iraq's receipts of foreign exchange on account of oil production may well exceed \$30 million. If the 30 inch pipeline reported by Standard of New Jersey

^{1/}Most Iranian oil is processed locally, while Iraqi Oil is processed in Palestine and elsewhere. Local expenditures by the Oil Companies might therefore be relatively smaller in Iraq.

to be under consideration is also constructed, production could be raised to 27 million tons and Iraq's receipts would well exceed \$60 million per year.

This would represent a substantial benefit to Iraq, whose budgetary receipts in 1946, including oil receipts, were about \$57 million. Iraqi Government's receipts on account of oil have largely contributed to the costs of the Government's capital works program, further rapid increase in the near future will be welcome especially in view of Iraq's intention to launch a 5 year development plan. The total direct and secondary effect of such a development on employment and production cannot be over-emphasized. An increase in foreign exchange receipts would also help to correct Iraq's traditionally passive balance of trade, amounting in 1946 to about \$60 million (or about \$40 million after making allowances for the fact that Iraq often over-values its imports in the interest of increased customs receipts). From 1947 to 1950 the construction of the pipeline will add to Iraq's foreign exchange receipts. It is reported that the two 16 inch pipelines will cost about \$150 million and the 30 inch pipeline about \$100 million. Admittedly much of this will be spent abroad for the purchase of steel, and for local construction expenses in other countries through which the pipelines will pass, but some of these costs will necessarily be incurred in Iraq.

4. Saudi Arabia

A. Concessions

Oil concessions in Saudi Arabia are the most recent in the Middle East and yet they are the most promising. In 1933, the California-Arabian Standard Oil Company, a subsidiary of Standard of California, obtained exclusive rights over an area of 165,000 square miles in Saudi Arabia on the western shores of the Persian Gulf and a preferential right to an oil concession in another area. In 1939, the additional concession was granted and the territory covered by the 1933 concession was extended further inland to a total area of about 450,000 square miles. In 1936, the Texas Oil Company acquired a 50 per cent interest in the California-Arabian Company, which, renamed the Arabian-American Oil Company (Aramco) is now owned equally by the Texas Company and the Standard Oil Company of California.

Each concession runs for a period of 60 years, and both provide for a royalty of 4 gold shillings per ton and 800,000 gallons^{2/} of petroleum to be delivered annually free of charge.

1/ Statistical Abstract, Government of Iraq, 1944-1945, - reports that the number of persons employed in Iraq by the Oil Companies at the end of December 1945 was 5,742.

2/ One barrel equals 42 U.S. Gallons.

The rapid development of oil production in Saudi Arabia has been hampered by inadequate transport facilities and there was, at one time, a fear that Ibn Saud, whose revenues from the pilgrimage had considerably declined owing to war conditions, might revise the concessions or grant competing British companies petroleum rights in Arabia. With a view to securing protection and semi-official status for their concessions, Aramco in 1943 offered the U.S. Government an option to purchase at a discount a large quantity of Arabian oil, the oil to remain underground until needed. The U.S. Government appears however to have taken the view that if American oil interests in Saudi Arabia and Bahrain, were to be defended, it would be by purchase of all or a large part of the shares of the oil companies developing in these areas. The companies, on the other hand, were unwilling to sell out any of their interests or to admit the Government to partnership, and the government then tried to secure a measure of control by financing a government owned pipeline from the Arabian wells to the Mediterranean. Transport charges for oil passing through this pipeline it was estimated, would be sufficient to amortize the investment within 25 years. The companies were to maintain a reserve of oil for purchase by the U.S. Government at a discount, and were not to sell oil abroad if in the opinion of the State Department such sales would be against U.S. interests.

Consideration of this project dragged for some time and it was then dropped. Aramco then prepared to proceed independently with the construction of a pipeline. Standard of California and the Texas Company jointly organized the Trans-Arabian Pipeline Company and financed a loan of \$125 million, guaranteed in part by Standard of New Jersey and Socony Vacuum, which also guaranteed a loan of \$102 million to Arabian-American for general development. These two companies are interested in the matter because of their intention to acquire respectively a 30 and 10% interest in Aramco and in the Trans-Arabian Pipeline. Completion of the deal awaits, however, a clarification of the present status of the Red Line Agreement of 1928, by which the participants in Iraqi Petroleum Company (including Standard of New Jersey and Socony Vacuum) agreed among other things to act only through jointly owned operating companies in all matters pertaining to the exploration for and production of crude oil within an area including most of Arabia (with the exception of Kuwait) Turkey, Iraq, Syria, Lebanon, Trans-Jordan and Palestine. Under this agreement, any concessions within the area obtained by any of the participants in Iraqi Petroleum Company had to be turned over to Iraqi Petroleum Company to be operated for the benefit of all participants. The question has been raised whether the German occupation of France, where a French company participating in the I.P.C. was incorporated and where Mr. Gulbenkian was resident at that time, may not have had the effect of dissolving the agreement. The latest reports indicate however that Standard of New Jersey and Socony Vacuum have reached an agreement with the Anglo-Iranian Oil Company and the Compagnie Francaise des Petroles, providing for the removal of the restrictive features of the Red Line Agreement and thus making possible the participation of Standard of New Jersey and

Socony Vacuum in Aramco, in consideration for (a) an undertaking by these two American companies to buy from Anglo-Iranian substantial quantities of oil over a 20-year period, (b) the joint financing and ownership of a pipeline from Iran to the Mediterranean, and (c) the granting to the French company of a greater share of the Iraq Petroleum Company's production, which it is proposed to increase considerably within the next few years. The final agreement seems, however, to be delayed pending the consent of Mr. Gulbenkian. If the agreement is concluded the ownership of Aramco will be as follows:

30 per cent	Standard Oil of California
30 per cent	Texas Oil Company
30 per cent	Standard Oil of New Jersey
10 per cent	Socony Vacuum

The latter two companies will pay \$76.5 million and \$25.5 million respectively for the purchase of their part in the Arabian-American Oil Company's shares. These payments will serve to retire the loan of \$102 million obtained by Aramco for development purposes.

B. Production

Commercial production began in 1936 with the discovery of the Dammam oil field. In 1940, a much richer field was discovered at Abqaiq, about 60 miles south of the previous one. In 1945, another rich field was discovered in the same region at El-Qatif. Many other fields, such as the Abu-Ha riya, discovered and shut in 1940, are in this area but exploitation awaits the construction of suitable means of transportation.

Production increased from 68,000 tons in 1938 to over 8 million tons in 1946. In the latter part of 1946, the growth of production was so rapid as to increase the annual rate of production to 12 million tons per year. It is expected that by 1950 when a pipeline to the Mediterranean is completed, production in Saudi Arabia will attain the level of 30 million tons a year, thus equalling the expected production from Iran at the same period.

The rapid growth of production can be seen from the following table

Oil Production In Arabia

<u>Year</u>	<u>Millions of tons</u>
1938	.1
1939	.5
1940	.7
1941	.6
1942	.6
1943	.7
1944	1.1
1945	2.9
1946	8.2

The construction of the pipeline has been long delayed partly by steel shortages and partly because of the lack of agreement on the route to be followed by the pipeline. It was generally agreed that the pipeline should start at Dhahran near the oil fields and end on the Eastern shores of the Mediterranean, but it was not agreed whether it would end in Egypt, Palestine or Lebanon. When it was finally decided that it would be preferable to end it on the Lebanese sea-shore after crossing Arabia, Iraq, Trans-Jordan, Syria and Lebanon, Syrian demands delayed the completion of the negotiations until September 1st, 1947, when, in exchange for certain payments and a share in the Lebanese Government's profits from the refinery to be set up by the Arabian-American Oil Company in Lebanon, Syria agreed to the passage of the pipeline through its territory. Construction is scheduled to begin before the end of October and the pipeline, 1,030 miles long and 31 inches in diameter, is expected to be completed by the end of 1949. It will end 30 miles south of Beirut, Lebanon, and will have a capacity of 300,000 barrels of oil daily.

C. Refining

The only refining center in Saudi Arabia is at Ras-Tanurah. Its capacity was increased during the war from 150,000 tons a year in 1939 to a rate of about 5 million tons a year at the end of 1946. Installation of additional refinery equipment is planned by Aramco for the near future.

Part of the Arabian oil is refined at the Bahrein refinery which is linked to the Arabian mainland by a long underwater pipeline (18 miles). The capacity of this refinery is about 5 million tons a year.

D. Benefits to Saudi Arabia from Oil Production

Saudi Arabia is perhaps one of the least advanced countries of the Middle East, the benefits of oil exploitation in that country are therefore not limited to royalty receipts but extend to many other aspects of production and welfare. The Dammam deep water harbor, the construction of which began early in 1947, will probably be the first modern port in Saudi Arabia. Railways from the oil installations to Dammam and between other important towns are planned for the near or very near future. Air bases are being laid down, radio stations are being built and minor secondary industries are rapidly springing up. Gold extraction on modern lines has also started and electric power will soon be produced at Dammam. The social effects of such rapid development are worthy of notice: literacy is increasing, sanitation is being carried on on a scientific basis, proper sewage and water systems are under way. Close contact with advanced civilization and the moral and social ideals of other peoples could also have a beneficial effect on the social structure of the country.

Foreign exchange receipts are large in comparison with the government's ordinary revenues. The royalty is four gold shillings, or, \$1.65 per ton^{1/}.

Leaving out of account the question of taxes or Government receipts in commutation of taxes, government revenue on account of oil royalties in 1946 when production was 8.2 million tons would amount to \$13.5 million. If we add the total value of costs incurred locally, estimated to amount to 10¢ per barrel (about 7.4 barrels of Saudi Arabian oil in a ton), we get a global figure of \$19.6 million for the total foreign exchange receipts of Arabia on account of oil in 1946. It is assumed here that local consumption of oil is of no significant importance. On the projected developments and pipeline are carried through, production by 1950 will probably reach a figure of 30 million tons per year and total foreign exchange receipts may well amount then to \$70 million per year. This figure, when compared to \$6 million, the estimated budgetary receipts of Saudi Arabia before oil production started in the country, reflects some of the large benefits likely to be derived by the country from the new industry.

5. Egypt

A. Concessions

Oil was first discovered in Egypt in 1908, but production was very low until 1938 when the Ras-Gharib field on the western shores of the Red Sea was discovered. In 1946, another field, the Sudr field, on the Western shores of the Sinai Peninsula was discovered and production will probably be further stepped up in the near future. The companies holding concessions in Egypt are the Anglo-Egyptian Oil Company (jointly owned by Royal Dutch Shell and Anglo-Iranian), the South Mediterranean Oil Fields (owned by Texas and Standard of California), Socony Vacuum and Standard of New Jersey. The American companies entered the Egyptian field in 1937 and now have concessions covering 72 per cent of the total area of about 25,000 square miles granted to all the companies. So far, however, there are no producing wells in the American concessions.

^{1/} There seems to be some difference between the Saudi Arabian Government and the Arabian-American Company on the rate of conversion to be used. Aramco uses the official price of gold in the U.S., i.e., \$35 per oz., or \$8.23 per sovereign (\$1.65 per four shillings). The Arabian Government would like a conversion rate based on the premium prices of gold sovereigns in the East. (Source The Oil Forum, New York, September 1947.) It is noted that neither of these interpretations follows the lines adopted with regard to Iran where the 1933 value of gold -- and not the predevaluation (1931) value -- is taken as a basis for calculations. This is the reason for the higher dollar royalty in Saudi Arabia and its equivalence with that of Iraq where the final agreement was concluded before the 1931 devaluation.

B. Production

Most of Egypt's oil is derived from Ras-Gharib which accounted in 1946 for over 95 per cent of the total production. In the last 16 years the trend of production was as follows

Oil Production in Egypt (Millions of Tons)

1930	.285
1935	.176
1940	.925
1941	1.209
1942	1.163
1943	1.278
1944	1.342
1945	1.344
1946	1.200

It is difficult to forecast the future trend of production. The English and American companies holding concessions also have concessions in other parts of the Middle East where production is cheaper than in Egypt. They may therefore devote their attention primarily to those countries, delaying production in Egypt unless the Government stipulates for the production of given quantities of oil by a certain date as a condition for the retention of the concessions. Latest report indicate that active explorations have started at Wadi Natroun in the Western desert.

C. Refining

There are two refining plants in Egypt, both situated at Suez. A small one owned by the Government is a topping plant with a capacity of 1400 barrels daily or about 70,000 tons a year. It treats part of the share accruing to the Egyptian Government as royalty in kind from local production. As production has now increased, the Government intends to expand the capacity of the refinery to 240,000 tons a year.

The other refinery, a much larger one, is owned by Anglo-Egyptian and has a capacity of 1.4 million tons a year. Some imported oil used to be refined there, but since the increase in local production only Egyptian oil is treated.

D. Royalties

The Egyptian Government gets a royalty in kind amounting to about 14 per cent of oil production. However, neither this royalty nor the total Egyptian production is sufficient for local consumption, and Egypt therefore imports annually relatively large quantities of foreign oil. Egypt thus does not draw from her oil production foreign exchange

receipts in the same way as other Middle Eastern oil producing countries though it saves foreign exchange equivalent to the value of the royalty and the local costs. This saving amounted in 1946 to about 3 million.

6. Kuwait

Kuwait, a small state on the northern shores of the Persian Gulf, with a population variously estimated at 50,000 to 100,000 inhabitants, is considered the site of the largest single reserve of petroleum in the world. De Golyer estimated in 1944 the indicated reserves of the Burghan field of Kuwait at 1300 million tons.

The Kuwait concession is held by the Kuwait Oil Company, owned equally by Gulf Oil and Anglo-Iranian. It covers an area of 6000 square miles and was granted in 1934 for a period of 75 years. As Kuwait is outside the Red Line Agreement, the Anglo-Iranian Oil Company had no obligation to share the concession with the other participants in the Iraqi Petroleum Company.

The Burghan field was discovered in 1938 but operations were halted at the beginning of the last war and the wells plugged in. Activity was resumed in 1946 and the first shipment took place in June 1946. Monthly production jumped from about 240,000 barrels in June 1946 to over 1 million barrels in December, and is expected to reach 70 million barrels or about 10 million tons by 1951.

The rapid increase in production, may depend on the construction of a pipeline to the Mediterranean. The Iranian pipeline planned for completion in 1950 by Anglo-Iranian, Standard of New Jersey and Socony Vacuum may carry some Kuwait oil brought to it through a feeder line from the Burghan field to Abadan.

If the planned developments take place and production reaches 10 million tons in 1950 or 1951, foreign exchange receipts on account of oil would then, on the assumption of royalties and other payments and costs similar to those of the other Middle Eastern countries, amount to about 25 million a year. To a backward country with a population of 50 to 100 thousand this represents a tremendous income, and it would certainly be the highest income per capita accruing from oil to any country in the world. In fact, the per capita income of Kuwait would then be one of the highest in the world. This would constitute a serious economic and social problem, demanding much thought, wisdom and foresight for its solution. The transition from Beduin nomad life to agricultural life is difficult without long-term patient planning, education and social adjustment. The changes required in Kuwait to take full advantage of the benefits that would accrue from oil production will be much more serious. There is a real danger that unless some form of elementary democratic control is introduced the tribal chieftains

governing the country may misuse the large income derived from oil and dissipate a major proportion of it without regard to the economic and social advancement of the people or the future of the country.

7. Bahrein

The islands of Bahrein in the Persian Gulf (150,000 inhabitants) a British protectorate, have lately been producing oil at the rate of one million tons a year. The Bahrein oil concession is now in the hands of the Bahrein Petroleum Company (Bapco). Bapco, nominally a Canadian corporation, is jointly owned by Standard of California and Texas.

Bahrein production jumped from 4,000 tons in 1933 to over a million in 1937 and has been at that latter level ever since.

The Bahrein refinery has a capacity of 5 million tons a year and treats local production and part of the Saudi Arabian oil.

Foreign exchange receipts on account of oil may well amount to 2.5 millions or about \$17 per capita.

8. Qatar

The oil concession on the Qatar peninsula on the western shores of the Persian Gulf was first obtained by Anglo-Iranian and then in accordance with the provisions of the Red Line Agreement, transferred to the Iraqi Petroleum Company, which founded the Qatar Petroleum Development Limited for its control. Oil was discovered there in 1940 but subsequently the wells were abandoned. However, the company plans to revive activity this year.

9. Conclusions

The importance of oil production to the economy of the Middle Eastern countries has been briefly indicated in the above studies. Its importance for the Middle East is not limited to the producing countries. Almost all the other countries of the Middle East enjoy or are shortly expected to enjoy material benefits from these activities. Syria, Lebanon and Trans-Jordan get relatively substantial receipts from the passage or the refining of oil in their territories. Turkey obtains a royalty from the Iraqi Petroleum Company on its production in Iraq. Ethiopia is under active exploitation for oil, and latest reports indicate that the Sinclair Oil Company has been drilling an oil field that is expected shortly to yield 3.5 million tons a year.^{1/} It

^{1/} Al Ahram, Cairo, Sept. 17, 1947.

is also expected that oil will soon be produced in Transjordan, Syria and Lebanon.

Oil production in these countries is an important source of income and employment for a great number of workers and, in some of these countries, oil production is the most important industry. The refinery in Iran, which is one of the largest in the world, and those of Palestine, Saudi Arabia, Bahrein and Egypt provide additional employment. The secondary effects on production and employment are considerable. The magnitude of the "multiplier" in these countries is probably relatively great. Owing to the prevalent conditions of poverty most of the secondary effects will occur locally, as the industries most affected will be those of prime necessities which are generally available locally.

The large expenditures on oil production in this area may indeed raise prices and keep the general level of wages higher than is compatible with prevalent standards of efficiency, but on the whole oil production benefits these countries both directly and indirectly, and the large royalty receipts accruing to them act as a stabilizing factor on their economies and give them some protection from the full impact of world depressions^{1/}.

Moreover, the foreign exchange receipts which accrue to these countries, as a result of oil production help them to purchase much of the foreign equipment required for their economic development and to balance their international accounts.

The effects of oil production on the Middle East are not limited to the economic sphere, but extend beyond to the social and political ones. The sudden and large flow of receipts to some of the more backward areas is likely to create a serious social problem which cannot be lightly ignored. If the receipts accrue to the governments or rulers of the countries, they may be hoarded or squandered abroad without much heed for the welfare of the people. On the other hand, the direct distribution among the population as a whole of a substantial part of oil receipts might, in their present state of education, leave them an easy prey to middlemen interested in accumulating large fortunes through the sale of luxury goods and alcoholic beverages, etc. Oil companies are not expected, of course, to control the way the receipts are spent but there is no doubt that the way of spending them will largely determine the benefits derived therefrom.

^{1/} Presumably, the low-cost oil production of the Middle East will not be materially affected by changes in prices. In the event of a depression any contraction of oil output would tend to be concentrated in the higher cost areas. As the receipts of the Middle East governments (except Iran) are determined by production and not by prices, cyclical changes in world economic conditions will not much affect these receipts, and, therefore, these countries will find themselves in a rather privileged position from the point of view of economic stability.

Politically, also, oil production in the Middle East has its serious aspects. When the Department of Commerce granted a licence on September 26, 1947, to export steel for the construction of the Trans-Arabian pipeline, it stated that this decision had been taken because, after consultation with other government departments, it was considered that "the strategical, political and economic interests of the U.S. made such action desirable." The United States at present controls about 30 per cent of Middle East oil production while the United Kingdom controls about 64 per cent. In 1950 or 1951, when the projected developments and pipelines are completed the U.S. and the U.K. will each be controlling 47 per cent of total Middle East production. Both countries are therefore interested in maintaining their position in the Middle East and in limiting other influences there.

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Appendix

Table I

WORLD OIL PRODUCTION

Daily Averages in Barrels^{1/}
1938 - 1947

<u>COUNTRY</u>	<u>1938</u>	<u>1939</u>	<u>1940</u>	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>	<u>1945</u>	<u>1946</u>	<u>Jan-Jun 1947</u>
U.S.A.	3,327,000	3,465,650	3,707,436	3,841,721	3,799,427	4,124,967	4,596,997	4,687,953	4,744,901	4,923,300
Venezuela	515,545	565,699	508,411	625,835	404,498	486,660	706,975	885,332	1,035,620	1,169,299
U.S.S.R.	561,500	594,200	297,300	652,500	623,200	475,000	391,400	408,125	457,460	493,000
Mexico	105,496	117,529	120,646	115,605	95,392	96,337	105,214	119,280	137,631	151,400
Roumania	132,841	127,060	117,940	111,006	118,066	108,550	71,760	99,957	88,764	71,680
²⁵ - Indonesian Archipelago	150,447	170,102	166,659	170,012	43	6,000	11,000	399	5,754	8,100
Middle East	330,149	328,254	276,783	225,751	301,963	325,770	426,667	543,341	728,941	797,825
Others	<u>310,932</u>	<u>330,487</u>	<u>363,044</u>	<u>364,168</u>	<u>314,899</u>	<u>318,021</u>	<u>352,256</u>	<u>305,188</u>	<u>313,798</u>	<u>317,942</u>
TOTAL	5,433,910	5,698,981	5,578,219	6,106,598	5,657,428	5,941,105	6,662,269	7,049,575	7,512,869	7,932,546

SOURCE: Oil Forum September 1947.

^{1/} The number of barrels in a metric ton varies - according to the density of oil - from 6.5 to 7.8 barrels per ton.
 A rough rate of conversion of 7.3 barrels per ton is suggested.

Note: Some of the figures appearing above differ from the figures in other tables in the text or the appendix.
 The difference in all cases is slight and can in some instances be attributed to the conversion rate adopted and in others to the unreliability of some war time data.

Table II

MIDDLE EAST OIL PRODUCTIONDaily Averages in Barrels^{1/}
1938 - 1947

<u>COUNTRY</u>	<u>1938</u>	<u>1939</u>	<u>1940</u>	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>	<u>1945</u>	<u>1946</u>	<u>Jan-Jun 1947</u>
Iran	212,287	199,542	179,406	137,535	195,710	202,095	276,395	350,631	399,564	383,386
Saudi Arabia	1,365	10,778	13,904	11,808	12,410	13,063	21,295	58,386	165,318	219,950
Iraq	89,433	84,359	66,270	34,657	54,044	68,077	84,786	88,628	89,800	90,315
Kuwait									27,990	60,000
Egypt	4,330	12,783	17,822	23,137	22,700	24,530	25,797	25,671	24,324	23,164
Bahrein	22,734	20,792	19,381	18,614	17,099	18,005	18,394	20,025	21,945	21,010
TOTAL	330,149	328,254	296,783	225,751	301,963	325,770	426,667	543,341	728,941	797,825

SOURCE: Oil Forum September 1947.

^{1/} The number of barrels in a metric ton varies - according to the density of oil - from 6.5 to 7.8 barrels per ton. A rough rate of conversion of 7.3 barrels per ton is suggested.

Note: Some of the figures appearing above differ from the figures in other tables in the text or the appendix. The difference in all cases is slight and can, in some instances, be attributed to the conversion rate adopted and, in others, to the unreliability of some war time data.

Table III

WORLD DEMAND AND SUPPLY OF OIL

Daily Averages in Barrels^{1/}
1946

	<u>Domestic Consumption</u>	<u>Domestic Supply</u>			<u>Excess Supply Over Demand</u>	<u>Excess Demand Over Supply</u>
		<u>Crude Oil</u>	<u>Natural Gasoline etc.</u>	<u>TOTAL</u>		
United States	4,906,700	4,749,100	321,200	5,070,300	163,600	
Other North America	<u>440,000</u>	<u>156,400</u>	<u>3,200</u>	<u>159,600</u>		<u>280,400</u>
Total North America	5,346,700	4,905,500	324,400	5,229,900		116,800
Caribbean Area	153,600	1,177,500	4,300	1,181,800	1,028,200	
Other South America	<u>223,600</u>	<u>98,200</u>	<u>3,300</u>	<u>101,500</u>		<u>122,100</u>
Total South America	377,200	1,275,700	7,600	1,283,300	906,100	
Europe (Excl. Russia)	808,300	136,400	46,200	182,600		625,700
Russia	514,700	438,200	9,000	447,200		67,500
Africa	160,000	24,500		24,500		135,500
Middle East	145,000	690,400		690,400	545,400	
Far East and Oceania	<u>420,700</u>	<u>67,400</u>	<u>4,200</u>	<u>71,600</u>		<u>349,100</u>
TOTAL WORLD	7,772,600	7,538,100	391,400	7,929,500	156,900	

SOURCE: World Oil Atlas 1947.

^{1/} The number of barrels in a metric ton varies - according to the density of oil - from 6.5 to 7.8 barrels per ton. A rough rate of conversion of 7.3 barrels per ton is suggested.

Note: Some of the figures appearing above differ from the figures in other tables in the text or the appendix. The difference in all cases is slight and can, in some instances, be attributed to the conversion rate adopted and in others to the unreliability of some war time data.