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The ROLE of PETROLEUM in the GROWTH of the LIBYAN ECONOMY

Submitted in partial fulfillment
for the requirements of the
degree of Master of Arts in
Arab Studies Department of
the American University of Beirut,
Beirut, Lebanon
summer, 1968

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ABSTRACT

The relation of petroleum to the economic development of Libya has intrigued me ever since I read John H. Lichtblau's contribution to State and Society in Independent North Africa (edited by Leon Carl Broun) entitled "Oil in the North African Economy." What particularly attracted my attention was Lichtblau's statement to the effect that Libya had the potential to become another Kuwait (page 282).

Although I had previously perused several articles purporting to show that Libyan life was rapidly being transformed by the influx of petroleum revenues, I had never imagined that this rapid capital influx would continue to the point that it might someday rival the riches of Kuwait, the state whose inhabitants not only enjoy the world's highest per capita income, but to me also was and is the epitome of a state that literally has more money than it knows how to rationally spend. The comparison is particularly apt in 1968, for recent indications show that Libyan petroleum production will surpass that of Kuwait some time later this year and thereby become the number five world producer and the number three exporter.

Africa, in general, has interested me for many years, while North Africa, in particular, has held a special place in my conscience ever since I spent the year 1965-66 in France during which time I came to meet and talk with many Maghrebis. When I arrived in Beirut the next year, I quickly decided that I would try to discover as much as I could about North Africa. Professor David C. Gordon of the History Department combined this passion (I do not believe that this word is an exaggeration) with the fact that I had majored in economics as an undergraduate to suggest that I write a term paper on "Petroleum in Algeria" for my Arab Studies seminar. The first book that he suggested for me to read in the compilation of research on this topic was, appropriately enough, State and Society in Independent North Africa. I thoroughly enjoyed both the topic and the book, and was elated when I was told that I could choose "Petroleum Production in Libya and Some of Its Ramifications" as the topic for my term paper for the second semester.

Since then I can not honestly say that I have systematically or continually kept up with the rapid train of economic changes in Libya. Nevertheless, I do feel that as this subject has never been far from my thoughts that it would be an appropriate subject for a Master's thesis. I am particularly happy to compile

research on this subject for two reasons. First, it is relatively a new development and this means that not enough discussion has been carried out in this field; and secondly, it is an area that offers dazzling possibilities for the future.

My original intention had been to contrast and compare petroleum development in Algeria and Libya, but my advisor, Mr. Marwan Iskandar, quite rightly pointed out that the field of petroleum in Libya was itself large enough to justify work toward a Master's thesis.

My opus is divided into five chapters. Chapter I gives a brief introduction into the Libyan environment prior to and after the discovery of petroleum. It is followed by a chapter attempting to demonstrate the attitude of official Libyan policy toward the exploitation of subsurface mineral wealth and how this attitude is reflected on the international scene, particularly in Libyan-OPEC (Organization of Petroleum Exporting Countries) and Libyan-Arab relations. My third chapter reviews the activities of the concessionary companies in Libya, while Chapter IV purports to show how petroleum capital has been changing the Libyan economy. The final chapter is composed largely of personal predictions about the role that petroleum will play in the Libyan economy of the future.

As this thesis has been immeasurably improved by the suggestions of Mr. Marwan Iskandar, I am greatly indebted to his contributions and corrections. Still, I can hold only myself accountable for each mistake of commission and omission appearing on any of the following pages.

TABLE OF CONTENTS

	page
I. INTRODUCTION	1
A. GEOGRAPHICAL SETTING	1
B. HISTORICAL BACKGROUND	3
C. THE LIBYAN ECONOMY 1952-1960	5
D. IMPORTANCE OF PETROLEUM IN THE WORLD	10
E. THE GROWTH OF THE LIBYAN PETROLEUM INDUSTRY	12
F. A GENERAL EXPLANATION OF WHY LIBYAN OIL WAS RAPIDLY DEVELOPED	14
G. SOME SALIENT FEATURES OF LIBYAN PETROLEUM PRODUCTION	19
(1) RESERVES	19
(2) PRODUCTION	20
(3) DIRECTION OF PETROLEUM EXPORTS	21
(4) THE RICHES OF PETROLEUM DEVELOPMENT	22
II. GOVERNMENT POLICY VIS-A-VIS HYDROCARBON DEVELOPMENT	26
A. IN REGARD TO CONCESSIONARY COMPANIES	26
(1) LEGISLATION REGARDING PETROLEUM EXPLOITATION	26
(2) LIBYA AND PARTICIPATION IN PETROLEUM OPERATIONS	32
(3) THE GOVERNMENT AND POSTED PRICES	34
B. LIBYAN-OPEC RELATIONS	37
C. ECONOMIC IMPLICATIONS OF LIBYAN POLICY IN REGARD TO NEIGHBORING COUNTRIES	41
(1) THE JUNE WAR AND ITS AFTERMATH	43
(2) ARAB OPEC	48

page

III. POLICIES OF CONCESSIONAIRES AND THE ECONOMIC DEVELOPMENT OF LIBYA 50

A. PETROLEUM COMPANIES 50

(1) ESSO STANDARD OF LIBYA 50

(2) OASIS 54

(3) MOBIL/ GELSENBERG 56

(4) BRITISH PETROLEUM AND NELSON BUNKER HUNT 59

(5) OCCIDENTAL 61

(6) OTHER PRODUCERS 64

(7) DISCOVERIES IN WESTERN LIBYA 65

(8) OTHER CONCESSIONAIRE COMPANIES 67

B. GAS OPERATIONS 71

(1) HISTORY OF OPERATIONS 71

(2) TECHNICAL ASPECTS OF THE BREGA PLANT 73

(3) POSSIBILITIES FOR LIBYAN GAS 74

IV. ECONOMIC SIGNIFICANCE OF OIL EXPLOITATION IN LIBYA 77

A. LIBYAN RECEIPTS OR OIL COMPANY EXPENDITURES 77

(1) BUDGET EXPENDITURES AND DEVELOPMENT 82

(2) IMPORTS AND EXPORTS 86

B. DEVELOPMENTAL PROJECTS 88

(1) PETROCHEMICAL 88

(2) PUBLIC WORKS 88

(3) AGRICULTURE 90

(4) COMMUNICATIONS-TRANSPORTATION 92

(5) HUMAN DEVELOPMENT--EDUCATION 94

(6) CONSTRUCTION--HOUSING 95

(7) INDUSTRY 96

page

V. HYDROCARBON AND ECONOMIC FUTURE OF LIBYA 100

A. THE FUTURE OF PETROLEUM AND OF PETROLEUM PRODUCTS IN LIBYA 101

B. THE LIBYAN ECONOMY IN THE FUTURE 108

BIBLIOGRAPHY 114

Chapter I

INTRODUCTION

A. Geographical Setting

Libya contains the fourth largest land mass in Africa englobing some 685,000 square miles (1.76 million square kilometers), of which only 5-10% can be considered to be inhabitable for settled populations.[1] Consequently, it is not surprising that Libya's population is one of Africa's smallest (1,559,400--according to the 1964 census) or that more than one quarter of the total population has typically led a nomadic or semi-nomadic existence with the result that only 0.4% of the land has normally been cultivated by settled farmers.[2] Stretching across the length and breadth of Libya is the immense North African plateau which extends from the Red Sea to the Atlantic Ocean. The better-watered coastal areas of Tripolitania in the northwest and Cyrenaica in the northeast are virtually the only inhabited areas together with

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[1] _The Economic Development of Libya_ (Baltimore: Johns Hopkins Press, 1960), p. 28.

[2] _Ibid._, pp. 28-29.

a few oasis "islands" that punctuate the Saharan "sea". Libyan climates vary from extremely hot in the summer to one frigid enough in winter to permit snow to accumulate in mountainous areas.

Known mineral resources other than oil and natural gas are quite modest. There are "ample supplies of marine salt along the coast and good deposits of gypsum" in northwest Tripolitania.[3] There are also potentially significant deposits of 45% iron ore in the Shatti Valley, which are presently too distant from exporting ports to be feasible for commercial production. In addition to the above-mentioned gypsum, small quantities of sodium carbonate (natron), chalk, and limestone are mined for local needs.[4] Deposits of potash, manganese, lignite, and alum are also known to exist, and uranium is thought to be present in Libyan soils, but none of these are large enough to warrant exploitation.[5]

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[3] Ibid., p. 32.

[4] "Libya," The Arab World, XI (Special Issue 1965), p. 68.

[5] Op. cit., The Economic Development of Libya, p. 32 and "Libya's Mineral Deposits," Middle East Economic Digest, p. 41.

B. Historical Background

The inhabited regions of Tripolitania and Cyrenaica are separated by hundreds of miles of desert lying to the south of the Gulf of Sirte. Tripolitania was originally colonized by the Phoenicians while the Greeks colonized Cyrenaica with the result that the two areas remained isolated from each other. When both regions came under Roman rule they still remained apart. Due to settled farming and elaborate conservation practices during the Roman era, Cyrenaica and Tripolitania are both thought to have had up to three times as many people as the present population of Libya. Despite the vicissitudes of intervening centuries featuring repeated invasions, Byzantine reassertion, and Arab conquest in the middle of the seventh century, breathtaking Roman ruins at Sabratha, Leptis Magna, Apollonia, and Cyrene remain to lend a living testimony to early achievements in Tripolitania and Cyrenaica.[6]

The Arabian tribes known as the Beni Hilal and the Beni Sulaim ravaged the Maghreb in the eleventh century, cutting forests, destroying crops, and upsetting the system of agriculture that the Romans had so methodically established. As a result, North Africa became progressively Arabized, but its citizens were more or less forced to abandon settled agricultural

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[6] Ibid., pp. 25-26.

agricultural life. Throughout the Middle Ages Tripoli was ruled first by the Arabs then at various times by Sicilians, Spaniards, the Knights of Malta, the Turks, and the autonomous Karamanli dynasty from 1711 until 1835 during which time it became a haven for the Barbary pirates. In 1835 the Turks reconquered Libya, assumed its empty treasury, and held sway until ousted by the Italians in 1911-12. The Turkish interlude proved to be another turbulent period characterized by rebellions, famines, and droughts (1871-72) and a cholera epidemic (1850).[7] Nevertheless, Libyans fiercely resisted Italian efforts to pacify the country, particularly in Cyrenaica (until 1931) and the Fezzan--the desert province situated to the south of Tripolitania.

International experts estimate that Italy invested approximately $150 million at pre-war rates of exchange in public works, utilities, and agricultural development during the thirty years it administered Libya. From 1936-42, roughly two-thirds of these Italian funds were allocated to agricultural development and land reclamation. Italy's contributions to the development of Libya's infrastructure were greatly offset, however, by the dispossession of Libyan landowners, the slaughtering of livestock herds, the

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[7] N.A. Ziadeh, Sanusiyah: A Study of a Revivalist Movement in Islam. (Leiden: Brill, 1958), pp. 26-28.

withering of traditional Libyan industries, and the neglect of Libyan education. Moreover, Libya (and particularly Cyrenaica) served as a major battleground during World War II. In consequence such cities as Benghazi, Tobruk, and Derna were badly damaged along with much of Libya's transportation infrastructure. When the Germans were finally driven out of Libya in 1943, Cyrenaica and Tripolitania were occupied by the British and Fezzan was administered by the French. Although a treaty with Italy was ratified in 1947, the major powers could not agree on the status of the liberated country, so the Libyan question was referred to the United Nations. This body passed a resolution calling for an independent Libya to be effected no later than January 1, 1952. Sayed Muhammad Idris as-Senussi, a grandson of the founder of the influential Senussi sufi order was elected by the National Constituent Assembly (which was composed of delegates appointed by Senussi and the leading notable from each of the two other provinces--Tripoli and Fezzan) to be the first sovereign of the United Kingdom of Libya. One year later Libya joined the Arab League and in 1956 the kingdom was admitted to the United Nations.

C. The Libyan Economy 1952-1960

It has been estimated that the total national

income for Libya in 1950 amounted to approximately $40 million. Translated into per capita figures this amounts to something like $35 to $40 per annum.[8] Similar estimates for the year 1958 placed both figures about three times higher, indicating that the 1950 estimates were unduly conservative and/or that much inflation or real progress had taken place in Libya's first six years as an independent nation. The kingdom's gross domestic product (G.D.P.) was said to have passed $136 million while per capita income reached $120.[9]

What is certain is that Libya was the beneficiary of increasing sums of foreign munificence which helps to explain part of the rise in the Libyan GDP. The following chart indicates the amounts in thousands of Libyan pounds (the £L equaled the British £ before the November 1967 devaluation of the £ sterling; the £L still maintains its previous parity with the U.S. dollar at the rate of one £L to approximately $2.80)

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[8] A General Economic Appraisal of Libya (New York: United Nations, 1952), p. 32.

[9] Op. cit., The Economic Development of Libya, p. 34.

granted to Libya from the fiscal year 1952-53 through the fiscal year 1959-60.[10]

TABLE 1 Foreign Economic Aid Allocated to Libya

(Libyan fiscal years: £L '000 equivalent)

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60
United States								
Technical co-operation	554	490	530	580	689	943	939	945
Project assistance	—	—	—	1,071	1,786	5,921	3,929	3,929
Non-project assistance[a]	—	—	1,786	1,428	1,428	1,428	2,856	2,856
DLF loan	—	—	—	—	—	—	—	1,786
PL 480, Title II, famine relief[b]	—	—	70	939	742	425	87	1,391
PL 480, Title III, relief[c]	—	—	—	37	94	419	638	477
Total	554	490	2,386	4,055	4,739	9,136	8,449	11,384
United Kingdom								
Budgetary grants	2,360	2,750	2,750	2,750	3,000	3,250	3,250	3,250
Development assistance	380	1,000	1,000	1,000	1,000	1,000	—	—
Total	2,740	3,750	3,750	3,750	4,000	4,250	3,250	3,250
Other Countries								
France	218	100	100	100	235	10	130	—
Italy[d]	10	10	10	10	10	10	1,010	—
United Arab Republic[e]	—	—	10	10	10	10	10	—
Turkey[e]	—	—	10	10	10	10	10	—
Pakistan	—	—	—	—	—	—	10	—
Total	228	110	130	130	265	40	1,170	—
United Nations[f]								
Technical assistance	233	275	208	215	261	262	260	250
Grand Total	3,755	4,625	6,474	8,150	9,265	13,688	13,129	14,884

[a] Includes the $4 million a year Special Purpose payments granted out of Department of Defense funds.

[b] Estimated world market value based on $63 a metric ton for wheat and $50 a metric ton for feed grains plus shipping costs.

[c] Commodity Credit Corporation reimbursement prices, which are above world

[10] *Ibid.*, 48.

American governmental aid to Libya was mostly channeled through the Libyan American Reconstruction Commission (LARC) which helped finance development projects as the Tripoli electrical power system, telecommunications facilities, and road construction, while also emphasizing the importance of education. United States aid first started to flow to Libya in 1954 following a bilateral agreement calling for the provision of aid in exchange for the construction and use of Wheelus Air Force Base just outside Tripoli. In 1960 LARC was abolished, but the United States continued to pledge at least $10 million per year for the following five years. In practice, however, the American government has habitually given more than the prescribed amounts by including military grants plus gifts of grain and fodder, particularly in the form of drought relief.

British aid has been administered in very much the same way by another agency. The Libyan Public Development and Stability Agency, established in 1952, is the name of this agency and its funds have been primarily devoted to budget assistance for the Libyan Government. In turn, this has permitted the Libyan Government to finance such projects as the construction of the new administrative center at Beida (which is generally conceded to have been an extravagant waste of

time and money), the construction of the entirely new capital for the Fezzan at Sebha, airport improvements, as well as minor projects for the development of agriculture, water resources, and tourism. Great Britain has equally equipped and trained important elements of the Libyan armed forces in return for the leasing of two small air bases on Libyan soil.

In addition, Libya received an estimated £L 10 million in 1957 and £L 7 million in 1958 from diplomatic, military, and other incidental expenditures by foreign government transactions in Libya. Furthermore, local expenditures of foreign oil companies' exploration efforts were beginning to make themselves felt, for in 1957 these amounted to £L 4 million and in 1958 to almost £L 9 million (excluding the value of goods directly imported from abroad.)[11]

The effect of all this foreign capital on the Libyan economy can not be overemphasized. By helping to initiate certain basic improvements in transportation and other services, this foreign capital added not only to the economy of the country, but incidentally to the speed with which foreign oil companies could start operations in Libya. The Libyan road program received £L 4.3 million worth of attention between 1954-58,

[11] Ibid., 33-34.

enabling the construction of important links. Rehabilitation work was made possible on the country's two most important harbors at Benghazi and Tripoli. Important as these two improvements were to the economy and to potential investors, the oil companies perhaps ultimately benefited more from the continued services of the international airports located just outside Benghazi and Tripoli. This aid was not, however, without certain drawbacks, for it was undoubtedly instrumental in spurring inflation within the country.

D. Importance of Petroleum in the World

The importance of petroleum is practically taken for granted today as oil and gas together provide about 60% of the western world's sources of energy. By 1985, the demand for petroleum products is expected to double its present rate and to supply 75% of the world's energy needs.[12] It is almost redundant, then, to mention that the overwhelming majority of the world's land, air, and sea transport carriers rely on some derivative of petroleum to propel themselves from one place to another. Or that petroleum provides a large percentage of the energy that is required to turn the wheels of countless factories throughout the world. Furthermore, more and more people across the globe

[12] Glass, G.P., "The Changing Dimensions of Government/Company Relationships", lecture delivered at A.U.B. on May 7, 1968.

are enjoying the amenities of gas heated homes and appliances. By-products of petroleum range from foods to fabrics to fuels to chemicals and plastics, and all of these items should play increasingly important roles in the future.

Fortunately, for the newer producers of oil, the consumption of petroleum products has more than quadrupled since the end of World War II. Libya, being the latest nation to join the ranks of the major producers, has benefited from this fact perhaps more than any other producing nation. It is essential to remember that the natural market for Middle Eastern and particularly for the more recent North African oil is Europe. Worldwide demand for petroleum is more than 31 million barrels per day and growing at an estimated 8% _per annum_. Europe requires roughly 8 million barrels per day (which nearly equals the sum of the production of all Arab oil producers), but Europe's energy requirements have been increasing at the rate of 11% per year.[13] Furthermore, Europe has for some years been engaged in the process of converting its coal-burning factories to an even greater dependence on cheap Middle Eastern and North African

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[13]Hugh de Wynne, "Significance of Libyan Oil", A.U.B. lecture March 3, 1967 and Meyer, A.J., "Economics of Middle Eastern Oil", lectures at A.U.B. on April 12 and April 17, 1967.

crude oils.

E. The Growth of the Libyan Petroleum Industry

As early as 1914 evidences of natural gas, and in 1937 traces of petroleum, were discovered in Tripolitanian wells. On the basis of these discoveries, the Italian firm Aziendi Generale Italiana Petroliche (AGIP), began an ambitious search program for oil in Libya, but had to abandon its operations when World War II broke out. Western oil companies awaited Libyan independence and subsequent political stability before applying for reconnaissance permits. Soon after obtaining independence, Libya promulgated a general Mineral Wealth law. Under the terms of this law, nine international companies applied for, and received, search permits which expired in 1955.

Meanwhile important hydrocarbon discoveries were about to be made (June 12, 1956) in neighboring Algeria. The Libyan Government, anxious to cash in on similar exploration expenses of companies and _a fortiori_ on possible royalty payments, enacted Law Number 25 on June 18, 1955 to encourage exploration on its territory.

The intent of this law was fully realized as fourteen companies were allocated operating concessions covering 55% of the land area of Libya within a three

year period. Seventeen additional grants were awarded in April 1961, as Libya followed only the United States in the degree of the diversification of its exploration and production concessions.

The first (unsuccessful) test well in Libya was drilled by the Libyan American Oil Company on April 30, 1956, somewhat less than five months after it had signed its concession agreement with Libya. Esso Standard of Libya, however, came up with the first successful, producing well in (western) Libya on January 1, 1958. This discovery greatly spurred activities in western Libya, yet subsequent efforts have not revealed that large enough quantities of oil exist in that part of the country to justify commercial production.

Consequently, Esso geologists shifted their attention to the Sirte Basin and were rewarded by the discovery on June 13, 1959 of the prolific Zelten oil field. Other companies immediately increased their own activities in the area south of the Gulf of Sirte and Mobil located another gigantic field on November 1, 1959, which it called Amal. Three other companies have subsequently discovered fields in the Sirte Basin that are potentially as large, if not larger than, either the Zelten or Amal giants.

F. A General Explanation of Why Libyan Oil Was Rapidly Developed

After World War II, reasonably stable Middle Eastern states became increasingly important in the supply of petroleum to Western Europe. European countries did not become alarmed at this dependence until the closure of the Suez Canal in 1956, for Middle Eastern producers could conceivably satisfy European demands for decades to come and it was--rightly or wrongly, consciously or unconsciously, assumed that they would. Libya and its North African neighbors figured prominently in the influx of exploration capital at a time when Europe was still faced with the possibility of a serious oil shortage. Furthermore oil companies are eternally interested in assuring as diversified and as consistent supplies of crude as possible. Since there was some doubt that Middle Eastern suppliers would satisfy these two criteria, oil men turned elsewhere; and North Africa was the great beneficiary of their exploration efforts. Oil was first discovered in Algeria in 1956 and began to flow to the Mediterranean in 1959, by which time discoveries in Libya had also been made. Both Algerian and Libyan production continued to grow rapidly as the result of a continually increasing demand in Europe for petroleum supplies. John Lichtblau cites some revealing statistics in this regard when he notes that:

> North African crudes supplied about 28 percent of [West German] total requirements in 1964, compared to 3 percent in 1961 while the Middle East share dropped to 44 percent from 64 percent in 1961. For Europe's six Common Market countries, total North African [viz., Algerian and Libyan; Algeria's production nearly doubled from 15,638,000 metric tons in 1961 to 26,483,000 metric tons in 1964 while Libya rose from a minuscule 700,000 tons in 1961 to a healthy 40,700,000 tons in 1964] imports accounted for 23 percent of total oil imports in 1964, compared to 1 percent in 1959, while the share [but the volume of Middle Eastern oil was growing all the time!] of Middle Eastern imports fell by almost exactly that many percentage points--from 77 to 57 percent.[14]

Again by way of comparison, Libya's 1967 production more than doubled its 1964 level, although it is doubtful that Libya wrested a corresponding share of the European market from Middle Eastern producers.

Oilmen tend to emphasize the factor of luck in the development of the Libyan oil industry. President Hugh de Wynne of Esso Standard of Libya observed that had the country's "black gold" been discovered in 1950 instead of 1957, Libya's independence might well have been delayed (and the struggle for independence more violent), as was the case in neighboring Algeria. The Esso official added that the fact that a major oil company (his) made the first commercial discovery speeded petroleum development.[15]

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[14] John Lichtblau, "Oil in the North African Economy," State and Society in Independent North Africa (Washington: The Middle East Institute, 1966), p. 271.

[15] *Op. cit.*, de Wynne.

Presumably he meant by this that the government did not need to unduly fear the consequences of lower revenues resulting from lower realized prices (royalties were paid on the basis of realized prices until the 1965 amendment to the Petroleum Law) if the company involved was a major, for the majors would and did not cut their prices as much as the independents. The explanation for this is that the majors had long-term, guaranteed market outlets for the sale of petroleum products, whereas the independents often had neither, and had to resort to price cutting (usually in competition with the majors) to receive any contract at all. Therefore, the Libyan Government sacrificed, under the terms of the June 1955 Petroleum Law, royalties proportionate to any reduction in the realized price.

Until 1963 the amount of revenues foregone by the Libyan Government was not altogether unreasonable, as government receipts per barrel averaged 62.7¢ in 1961, 64.7¢ in 1962, and 65.0¢ in 1963. These figures did not compare too unfavorably with the prevailing Middle East average receipts of 75-76¢/barrel for these years; although they remained about a third lower than per barrel royalties in Venezuela. Significantly, Libyan per unit revenues dipped in 1964 when

the three independent companies composing the Oasis group massively increased their "subsidized" exports to newly-acquired European refineries while the majors were forced to lower their own prices to meet this type of cutthroat competition.[16]

De Wynne does admit, however, that in encouraging all (italics added) companies to explore for oil, the Libyan Government demonstrated great foresight. Thus he is willing to admit that although the independents temporarily sold oil on which the Libyan Government could not perceive maximum revenues; when it could, it would find these revenues augmented appreciably from a twofold effect--one, automatically higher receipts per barrel; and two, the marketing of a considerable increment of its mineral wealth that almost certainly would not otherwise have been so eagerly developed. This latter advantage is further underscored by the fact that the independent Occidental made its huge 1967 discoveries on lands given up as unproductive by Mobil Oil Company--which had been working its major producer at Amal for several years.

This leads to the all-important question of the economics of Libyan oil. It is 17,000 kilometers round trip from Kuwait to Marseille via Suez, 6,000

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[16] "Oil Revenues of Host Governments," Petroleum Press Service, XXXIII (September 1966), p. 327.

from the oil terminals in the Levant, but only 3,600 from the Gulf of Sirte to that French port which is especially significant because of its proximity to the terminal of an oil pipeline that serves several of the continent's major consumers. Thus an identical barrel of crude costs 30¢/barrel less in transportation fees for Europeans if it comes from Libya instead of the Gulf.[17] If the barrel is shipped from Algeria, it will save even more on shipping. Nevertheless, Algerian oil costs significantly more to produce per barrel than Libyan oil as it is located further from the coast (transportation costs inside the country, then, offset savings in shipping), its wells are generally deeper, and the probability of finding commercial oil fields in Algeria is more risky than in its eastern neighbor.

North African oils typically have a lower sulfur content than Middle Eastern oils, thus enabling refineries to reduce their costs. Libyan oil is not, however, without some disadvantages. Like Algerian oil, it is light (as indicated by relatively high API° readings); which is fine for naphtalene extraction used in aircraft propulsion and the chemical industry, but inconvenient in the refining of fuel and gas oils favored by factories and most vehicles. European

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[17] Dr. Nicholas Sarkis, "Le Pétrole Africain," Jeune Afrique, N° 312 (January 1, 1967), p. 37.

demand patterns favor the importation of this latter (heavy) crude, although American refiners are not so reluctant to accept lighter crudes. There is, however, some indication that lighter crudes will become increasingly popular relative to heavier crudes in future European demand trends. Some Libyan fields produce waxy, high pour-point crudes which are difficult to transport in pipes and in vessels. All factors considered, Libyan oil has proven itself to be fully competitive with Middle Eastern oil in European markets, even before the 1967 closure of the Suez Canal. Consequently, unlike Algerian crude, Libyan oil has consistently competed on wholly commercial terms in the light oil market. At one time, France compelled all oil refiners operating in its territories to take a certain percentage of "franc" oil from Algeria or face certain taxing penalties. Libya has never benefitted from such official measures of a foreign government.

G. Some Salient Features of Libyan Petroleum Production

(1) Reserves

In 1962 Libyan oil comprised about 1.4% of the world's 42,766 metric tons of estimated petroleum reserves and roughly 36% of African reserves. By 1965 world reserves had increased to 48,136 million tons and Libyan discoveries provided about a third of that

increase. Percentage figures reflect these increases as Libya's share of the world producers had attained 2.7% of the world or 42% of African reserves. This trend continued into 1966 for Libya could then claim 2,634 million metric tons which amounted to 60% of Africa's estimated reserves and 5% of the world figure.[18] Rough calculations would indicate that Occidental's 1967 discoveries have added 878 million tons of reserves to the 1966 Libyan figure and that these discoveries dwarfed other exploration activity in Africa and the world to the extent that Libyan oil now accounts for 68% of African reserves and 6.5% of global reserves.[19]

(2) Production

Libya has attained its lofty position as the world's number six producer of petroleum in a period of less than eight years, for only in 1961 did oil begin to flow from Libyan fields through invariably huge pipelines to refurbished or artificially-constructed Libyan ports for transshipment to ports in consuming countries. In its initial year of production, 5,245,000 barrels of Libyan oil were produced. Today,

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[18] "Estimated Proved Reserves of Crude Oil," P.P.S., XXXIV (May 1967), p. 184, "Les Reserves de Pétrole," Le Commerce de Levant, VII, 6 (June 1967), p. 109, and Arab Oil Review, IV, 4-5 (April 1967), p. 28.

[19] "Occidental Completes Third Idris Giant," Oil and Gas Journal, LXV, 47 (November 20, 1967), p. 154.

eight years later, Libya can equal this amount with about two days' production. The following chart records the annual progress of Libyan crude output.[20]

Year	(Thousand barrels) Amount	Absolute Yr'ly Rise	% Rise over Preceding
1960	--		
1961	5,245	5,245	...
1962	65,503	59,258	1128%
1963	167,788	102,285	158
1964	315,660	147,872	88
1965	446,493	130,853	41
1966	546,863	100,370	23
1967	636,504	89,641	16

Thus, Libyan production, until recently, has been increasing at more than two times the rate of incremental world demand although both its absolute and percentage rates of increase have been slowing down since 1964.

(3) Direction of Petroleum Exports

The amount of crude oil destined for the world's refineries often varies from year to year and from month to month according to local dictates. Nevertheless, it is usually not difficult to establish a general trend of where the oil of producing countries goes and in what quantities. Libya is no exception to this norm. Libya had sold oil to twenty-four different countries (by December 1967) on five continents but until the June 1967 war West Germany would typically receive from

[20] P.P.S., various issues.

30-40% of Libya's production, the United Kingdom and Italy from 10-20% each, with France and the Netherlands accounting for 5-10% apiece. The June war momentarily modified this pattern somewhat, with exports to West Germany and the United Kingdom slackening, while those to Italy, Belgium, and Spain were becoming relatively more important.[21] In fact, over 90% of Libya's exports in 1967 were destined for these eight countries.[22]

(4) The Riches of Petroleum Development

Even before commercial oil had started to flow from Libyan fields toward European consumers, 80 million Libyan pounds of oil company money had been injected in the form of local expenditures into the Libyan economy by 1960. Again for the year 1960, it has been calculated that petroleum activities provided £L21.3 million of foreign exchange, or 38% of the total that Libya received in that year. Foreign governments provided 44%, but no other activity added more than one-third of the petroleum figure.[23] Significantly, at this time the 1961 budget was fixed at £L 12 million,

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[21] "Selling Libyan Crude," P.P.S., XXXIII (August 1966), p.285, "Les Exportations Libyennes de Pétrole en 1966," Le Commerce du Levant, VII, 80 (April 1967), p. 11, and "Libyan Statistics," Arab Oil Review, various issues.

[22] "News in Brief," P.P.S., XXXV (June 1968), p. 233.

[23] Ali R. Bengur, "Libye: Ressources pétrolières, finances publiques et développement," Le Commerce du Levant, VII, 83 (July 1967), p. 25, and "Oil to the Rescue," Economist, CXCIV, 6071 (January 2, 1960), p. 21.

but it was also anticipated that the government would receive £L 15 million of royalties from every 73 million barrels of oil produced.[24] As established earlier, this figure was not only reached, but more than doubled in 1963.

This growing level of activity brought about a corresponding increase in foreign exchange earnings. In 1963, Libya received £L 59.5 million of its 87.1 million total of devises from petroleum activities. In 1964, it was £L 95.6 million out of £L 122.7 million and in 1965, £L 131.4 million (84%) out of £L 156.8 million. By this latter date, the second most important source of foreign exchange (still foreign governments), contributed only 8% of the country's foreign exchange.[25] The total of oil company expenses in Libya between 1957 and 1965 amounted to £L 500 million.[26]

The continued progression of petroleum revenues and the effect that this had on Libyan budgets can be

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[24]"Libya's Oil Boom," Economist, CXCIV, 6082 (March 19, 1960), p. 399.

[25]Bengur, op. cit., 25.

[26]"When Will Desert Bloom," Economist, CCXV, 6355 (June 12, 1965), p. 1323.

observed from a glimpse at estimates of Libyan budgetary receipts for the fiscal years 1965, 1966, and 1967.[27]

Item	Millions of £L 1965/66	1966/67	1967/68	
Petroleum	116	138	170	
Customs	15	20	24	
Taxes	7.15	9.275	10.43	
Ports	3.6	4	4.067	
Licenses + fees	3.25	3.25		
Monopolies	3.2	3.2		
PTT	2	2		21
Public Utilities	1.3	1.4	1.436	
Civil Aviation	1	1	1	
Agriculture	0.1	0.1	0.175	
Reserves	9.6	--		
Other	3.6	4.3		

Royalties received during this period rose from $3 million in 1961 to $39 million in 1962, $109 million in 1963, $197 million in 1964 and $422 million in 1965.[28] Libya expects to receive £L 275 million for the fiscal year 1968-69, which would represent a rise of 62% over the 1967-68 figure of £L 170 million.[29] Total expenses of oil companies operating in Libya for the years 1964 through 1967 can be guaged from the following table.[30]

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[27] Economist Intelligence Unit: Quarterly Economic Review, various issues and Middle East Business Digest, XII, 159 (February 1968), p. 28.

[28] "Oil Revenues to Host Governments," op. cit., 327.

[29] "News in Brief," P.P.S., XXXV (May 1968), 193.

[30] "Iran, Saudi Arabia, and Libya Urged to Abide by OPEC Production Program," Middle East Economic Survey, IX, 29 (May 20, 1966), p. 8 and "Petroleum Activities," Bank of Libya Economic Bulletin, VIII, 2 (March-April 1968), p. 38.

Local Expenses in thousands of £L

	1964	1965	1966	1967
Salaries + wages	4,385	4,698	6,233	4,608
Contract services	26,449	30,299	24,472	25,625
Material + supplies	10,106	12,545	10,319	6,612
Food supplies	505	268	472	715
Other	7,031	2,900	7,052	5,719
Total	48,476	50,710	45,548	43,279
Expenses abroad	75,918	80,536	80,306	88,716
Grand total	124,394	131,246	125,854	131,995

With this general introduction one can obtain some idea of the overwhelming importance to the Libyan economy. Now it is necessary to examine in greater detail how the expected receipt of oil revenues and official government policy have mutually affected each other in the exploitation of Libyan subsoil wealth.

Chapter II

GOVERNMENT POLICY VIS-A-VIS HYDROCARBON DEVELOPMENT

A. In Regard to Concessionary Companies

(1) Legislation Regarding Petroleum Exploitation

Law Number 25 of 1955 has been mentioned above as being motivated essentially by the desire to attract some of the same type of exploration capital that was active in Algeria at that date. Noteworthy provisions of this exceedingly liberal law, designed to encourage intensive activity and rapid development of potential petroleum resources, included: the limitation of concessions to a fifty year period embracing not more than 30,000 square kilometers in the two northern zones and 80,000 square kilometers in the two southern zones; the relinquishment of one-quarter of the original concession area within five years of the date of the concession, followed by an additional one-quarter within three more years, and then by another fraction in two more years so that the concessionaire would hold no more than 33 1/3% of the original grant in the two northern zones (or less than 3,000 square kilometers) and 25% (or less than 5,000 square kilometers) in the two southern zones, the working obligations of the

concessionaire--requiring the company to begin exploration within eight months of the grant and to spend a minimum of money per square kilometer; the enumeration of certain fees, surface rents, plus the 12 1/2% royalty rate; the provision for a 50% sharing of profits with the concessionaire, including definitions of what constituted profits, how amortization of capital expenditure and the depletion allowances were to be calculated; the right of international arbitration in the event of contention between any company and the government's Petroleum Commission; and finally Article 24, authorizing the government to issue regulations to implement the law where this would not contradict existing laws.[1]

The result of this law was a flood of applications for operating concessions. Within three years 55% of the land area of Libya was allocated to fourteen companies. Seventeen additional concessions were awarded by April 1961.

As Law Number 25 of 1955 was enacted at a time when Libya's oil potential was unknown, the Libyan Oil Ministry felt justified in proposing two major amendments to this law after some major discoveries had been made. The Royal Decree Law of July 3, 1961 was an

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[1] Abdul Amir Kubbah, Libya. (Beirut: Rihani Press, 1964), pp. 66-73.

obvious attempt to model Libyan production along the lines of Middle Eastern producers by hastening development and ensuring that Libya received a greater share of royalty revenues (plus the right to receive all of its royalties in kind if so desired) from operating companies. This amendment provided for the prohibiting of the cession of permits or the renting of surplus pipeline capacity by one company to another without the expressed approval of the Petroleum Commission (later the Minister of Petroleum Affairs); it authorized the Petroleum Commission to decide on the selection of conflicting applications for operating concessions; it established new criteria for the relinquishment of grants; it increased concession fees and surface rentals, and it abolished compensation subsidies.[2]

Nevertheless, the above amendment still permitted concession holders to make certain rebates and abnormal discounts off posted prices in order to market Libyan crude. Since only the 12 1/2% royalty was paid to the government on the basis of the artificial posted price, and the fifty-fifty government-company split of profits was made on the basis of prevailing market prices, the government was, in effect, "subsidizing" the search by companies (chiefly independents) for market outlets. This was not only a heavy, but a growing charge for

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[2] "Major Amendments to the Libyan Petroleum Law," M.E. Economic Survey, IV, 37 (July 21, 1961), regular (pp. 3-4) and supplement.

Libya to bear as the Oasis group alone accounted for more than 40% of Libya's 1.3 million barrel/day production, but paid little more than the specified 12 1/2% royalty and rental rate on November 20, 1965 when the second major amendment to the 1955 Petroleum Law was presented. Furthermore, the Organization of Petroleum Exporting Countries (OPEC), which Libya had joined in 1962, was demanding that concessionaires provide for the expensing of royalties on realized prices. Expensing of royalties meant that companies would treat royalty payments as a cost item rather than a credit against payments of income taxes to interested governments thereby adding _in toto_ one-half of the 12.5 percent royalty with the customary 50% profit-sharing payment to the government.

Accordingly, the November 20,1965 amendments of the Petroleum Law embodied these OPEC principles and called on all companies to accept its terms, or run the risk of not being permitted to bid for any of the new concessions that Libya was planning to auction in early 1966. Libya was vigorously supported in this legislation by the other OPEC members, who declared that they, too, would not grant any further concessions to companies refusing to accept the Libyan amendments. Although the Libyan Government offered not to contest any financial dispute dating from 1961 to January 1965 between it and companies agreeing to the amendments, it

took a thinly-disguised governmental threat to halt the exports of recalcitrant companies, before several independents would sign the amendments, even after the deadline had been extended several times for their benefit. Libyan Prime Minister, Mumtazah, offered the following explanation for his country's position on this piece of legislation to <u>al-Hayah</u> (Beirut):

> Notwithstanding our conviction that the amendment of laws is an act of national sovereignty which can be carried out an any time, we have taken great care to respect the contractual rights of these companies and treat them all alike, by following the policy of negotiation, understanding and persuasion. ...If the recalcitrant companies did in fact stop production and exports, we should still be receiving from the companies who have so far agreed, not only as much [revenue] as we are now getting from all companies [Libya expected to receive an additional $134 million as a result of the passage of the amendments for the year 1965 alone[3]] but several millions of £L a year in addition.[4]

The "carrot" extended to companies enticing them to accept the amended Petroleum Law was the offering of more acreage in July 1965 for purposes of exploration. Forty-two companies submitted bids for nineteen concessions, including many that had originally been alloted in the mid-fifties and then relinquished

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[3]"Tougher Terms in Libya," <u>P.P.S.</u>, XXXIII (January 1966), p. 8 and "Oil Revenues for Host Governments," <u>op. cit</u>., 327.

[4]"Comply with New Law or Stop Operations; Libyan Prime Minister Warns Recalcitrant Companies," <u>M.E. Economic Survey</u>, IX, 9 (December 31, 1965), p. 6. For above paragraphs <u>M.E.E.S.</u> supplements VII, 49 (October 9, 1964); IX, 5 (December 3, 1965); and IX, 9 (December 31, 1965) were also indispensable.

after a five or eight year interval. Prior to this bidding only two grants had been made of discarded areas and both were found to contain commercial quantities of oil on closer scrutiny. The government accorded priority to bidders satisfying the following standards: acceptance of the Petroleum Law as amended, reliance upon Libyan services, submission of large contracts for governmental approval, acceptance of detailed governmental supervision of work and conservation programs, the granting of an increased percentage of profits to the government and/or the expensing of a high proportion of the royalty, the according to the government of the right to take up to one-half of its payment in kind, the availability of guaranteed market outlets for petroleum products, and the promise to construct refineries or other petrochemical plants in Libya.[5]

Apart from the provisional Petroleum Commission, whose functions were later assumed by the Ministry of Petroleum Affairs, the Libyan Government has continually been advised on matters relationg to petroleum operations by the interministerial Libyan Oil Council which, in turn, consults both Libyan and foreign specialists. Three non-political Libyan advisors resigned from this Council

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[5] "New Criteria for Concessionaires," P.P.S., XXXII (July 1965), p. 267; "Libya's New Concession Awards," M.E. Economic Survey, IX, 38 (July 22, 1966--supplement), pp.1-8; and "Novel Terms in Libya," P.P.S., XXXIII (August 1966), pp. 304-305.

after alleging that King Idris as-Senussi had overruled its decision not to assign concessions to several suspicious companies. Although the king's private secretary denied any interference, he admitted that the king thought that prospecting permits should be allocated to any company that offered the best conditions to Libya.[6] Those resigning would seem to have been vindicated for in early May of this year the concessions of four of these lesser-known recipients had their six concessions revoked on the grounds that they had not fulfilled the terms of the concession agreements.[7]

(2) Libya and Participation in Petroleum Operations

A recurrent theme in Libyan agreements (and increasingly in vogue in other oil-producing states) is the option to market the country's own oil as well as to share in various phases of the oil production. This has already been mentioned in connection with the 1961 amendment and the parcelling of concessions in 1966. In fact, however, Libya has not yet exercised the option that would permit it to take its 12 1/2% oil royalties (more if oil is found in some of the concessions alloted in 1966) in crude that it would then market by itself. Whether Libya ever will resort

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[6] "Resignations from Libya's Oil Council," M.E. Business Digest, X, 137 (April 1966), p. 20.

[7] "Libyan Government Revokes Concessions of Four Companies," M.E. Economic Survey, XI, 28 (May 10, 1968), pp. 1-2.

to this type of deal is a matter for speculation. At one time Libya considered the possibility of purchasing stock in producing companies. In a paper presented at the ninth OPEC conference held in Tripoli on July 7, 1965 Libya's ex-Minister of Petroleum Affairs suggested that:

> Companies are, after all, partners with producing countries, and they are equally interested in acquiring price stability. The importing countries tend to impose taxes on the distribution of oil products for several reasons, the most important being the preservation of consumer prices, so as to prevent an increase in consumption, and consequently waive the drain on their hard currency through crude prices.[8]

Another government official recently observed that:

> Each state has the right to adopt the policy it deems fit for itself. In view of the fact that we have no intention [italics added] at the present time to adopt this type of agreement [oil barter], I am unable to express any specific viewpoint on the matter. However, I would like to make it clear that Libya has no objection to exporting oil to Eastern European countries, and that it is in fact exporting oil to Yugoslavia.[9]

Nevertheless, about a month later Prime Minister Abdul Hamid Bakkush signed an agreement with the French state oil company ERAP while on a visit to Paris that would authorize Libya to share in 30-50% of the company's

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[8]"Libyan Suggests Easy Way for OPEC to Integrate on Oil," Oil and Gas Journal, LXIII, 29 (July 19, 1965), p. 64.

[9]"Libya Shuns Barter Deals," M.E. Economic Survey, XI, 21 (March 22, 1968), p. 4.

operations depending on how much oil is found.[10]

Already Libya has undertaken such projects as the formation of a Permanent Pricing Committee to watch developments in the prices of petroleum products on the world markets for their possible impact on Libyan production,[11] the establishment of a National Oil Company (which was a prerequisite for the ERAP-Libyan agreement),[12] and an interministerial Supreme Council for Petroleum Affairs[13] that has benefited from Iranian, and lately, French expertise.

(3) The Government and Posted Prices

Following the June war and the closure of the Suez Canal, oil exported from Mediterranean ports became comparatively much less expensive to deliver to European markets than oil shipped from the Gulf. Consequently, the demand for Libyan oil increased markedly. As mentioned earlier, British Petroleum was especially anxious to augment its Libyan output to offset increased

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[10] "French Oil Group Awarded Concession in Libya," M.E. Business Digest, XII, 161 (April 1968), p. 14.

[11] "News in Brief," P.P.S., XXXIV (July 1967), p. 313.

[12] "Faits et Evenements économiques au Liban et dans le Monde Arabe," Le Commerce du Levant, VIII, 87 (December 1967), p. 13 and "Full Text of Law Establishing Libya's National Oil Company," M.E. Economic Survey, XI, 26 (April 26, 1968), pp. 1-9.

[13] "Next Steps," P.P.S., XXI, 10 (October 1964), p. 387.

expenses elsewhere. Other companies operating in Libya have reacted similarly. Therefore, on August 9, 1967 Libya called for an 80¢/barrel price increase for its oil on the basis of the definition of posted prices in the Petroleum Law and the following facts:

1. The world-wide increase in prices of petroleum and petroleum products, particularly in European markets.
2. The more favorable geographical position of Libya for the supply of these markets in comparison with the Arabian Gulf owing to the closure of the Suez Canal.
3. The rise in freight rates which increases the favorable situation and demand for Libyan oil compared with oil from the Arabian Gulf.[14]

Accordingly, Libya proposed that posted prices be calculated on a sliding scale by including in the calculation the Average Freight Rate Assessment (AFRA), published monthly by the independent London Tanker Brokers' Panel.[15]

To justify its claim, the Libyan Government indicated that whereas 34° American Petroleum Institute (API) rated crude from the Gulf cost Europeans $2.40/ barrel ($1.80 for the posted price plus 60¢ freight) before the closure of Suez; after the June war the cost of this same oil which competes with Libyan oil sold for

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[14] "Full Text of Libyan Statement on Proposed Posted Price Increase," M.E. Economic Survey, X, 42 (August 18, 1967--supplement), pp. 1-5.

[15] "Governmental Proposal on Posted Prices," M.E. Economic Digest, XI, 37 (September 28, 1967), p. 659.

$3.35/barrel ($1.80 plus $1.55 freight). Meanwhile the $2.21 Libyan posted price for 34° oil remained unchanged. Moreover, Libyans complained that their oil was being pegged at the same price as Iraqi oil, which should have been priced 8¢/barrel lower due to differences in API readings, although the price would still not take into account the lower sulfur content of Libyan crude, nor the shorter distance for tankers embarking from Libyan ports.[16]

The majors offered a counter proposal to suspend the 6 1/2% OPEC discount (which was the discount still allowed subsequent to the royalty expensing agreements which came into effect as of January 1964) retroactive to July 1, 1967 calculated on Libyan posted prices as long as the "extraordinary circumstances" kept the Suez Canal closed. Oilmen calculated that this would raise the tax price of Libyan crude by 17¢/barrel and the annual revenues of the Libyan treasury by as much as $65 million per year.[17] At the January 1968 OPEC meeting in Beirut, Libya maintained a discreet silence in order not to prejudice the negotiations between member countries and the companies on the gradual elim-

[16] "Price Problems Must Be Solved," Arab Oil Review, IV, 9-10 (September-October 1967), p. 4.

[17] "Libya Mulls Esso Price Offer," Oil and Gas Journal, LXV, 41 (November 9,1967) and "Operators in Libya Drop 6 1/2% Discount," Oil and Gas Journal, LXV, 47 (November 20, 1967), p. 154.

ination of the API and discount allowances, but Libya did not feel affected by the proceedings of this conference as the companies had already offered to provisionally terminate all discounts off posted prices from Libyan terminals.[18] The Libyans have indicated that they do not regard the companies' posted prices offers as final, because they ask that the OPEC allowances be permanently abolished, as well as alleged "discrimination" against the lighter crudes, and that posted prices be fixed on the bases of an AFRA type yardstick.

B. Libyan-OPEC Relations

Symptomatically, OPEC was conceived by countries dependent on petroleum royalties following two drastic cuts in posted prices in 1960. Libya became the seventh member of the organization in 1962 and was followed shortly thereafter by Indonesia, while Abu Dhabi only recently adhered to the organization. In 1966 OPEC members accounted for 40.8%[19] of the world's production of oil but this belies their true importance for these countries contain between 65-70% of the world's proven reserves of petroleum.

Libya joined OPEC in time to participate in the

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[18] "Libya Plans Separate Talks on Allowance Issue," M.E. Economic Survey, XI, 11 (January 12, 1968), p. 13.

[19] "The Creation of 'Moderate' Arab Oil Group Threatens OPEC Balance," M.E. Economic Digest, XII, 3 (January 22, 1968), 3.

formation of resolutions calling for an increase in Middle Eastern posted prices, the expensing of royalties, and a decrease in the number of tax-deductible marketing expenses for the companies. As pointed out in the previous section, Libya has since advocated all of these items on its own initiative in its dealings with concessionary companies operating within its borders.

In 1964 OPEC submitted a production programming plan which it asked both companies and producing countries to observe. Libya has been sceptical of this approach, fearing that it might unduly hinder the growth of its oil exports. Libyans have instead urged some vague form of tripartite cooperation among exporting and consuming countries along with the companies. Libyan results speak for themselves as does the following complaint about Libya's rapid production growth taken from the Arab Oil and Gas Journal,

> Again we wish to tell them that Libya has no need to increase production at the rate it has been doing. In 1965, Libya's production rose by 40% over that of the preceding year, while the OPEC quota provided for an increase of only 20%.[20]

Libya again received a 20% increase in allotment by OPEC at the Nineth Conference, held in Tripoli. In contrast Venezuela and Indonesia were authorized to

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[20]"Iran, Saudi Arabia, and Libya Urged to Abide by OPEC Production Program," op. cit., p. 8.

to make a 3.3% increase, well below the 10% average OPEC boost. Iran, on the other hand, was close to Libya with a 17.5% authorization for raising its output. Be that as it may, Libya seems to have outstripped its second guideline, but less flagrantly than the previous year.

It has been previously stated that the November 20, 1965 amendments were largely an attempt to harmonize Libyan policy with OPEC policies on the expensing of royalties and the limiting of marketing allowances. As such they were hailed by members of OPEC who supported them with the following resolution passed at the organization's Tenth Conference held in Vienna:

> ...Governments of Member Countries of OPEC, until such time when those title-holder companies operating in Libya undertake to comply with the obligations of Articles 11 and 12, of the Royal Decree of November 22, 1965, shall not grant any new oil rights of any nature whatsoever or enter into any new contracts concerning the exploration and/or exploitation of new areas to parent companies of said title-holder companies, to affiliated or subsidiary companies of any of them or to any other company in which one of the said title-holder companies has an interest of 10% or more--nor shall any Government of a Member-Country of OPEC enter into, or continue, negotiations with any of the above-mentioned title-holder companies on any matter directly or indirectly concerning the grant of new oil rights.[21]

At its thirteenth conference held in Rome in the fall of 1967, OPEC likewise resolved to support the Libyan demand for an increase in posted prices by proclaiming

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[21] "Resolutions of the Tenth Conference of OPEC in Vienna December 15-17, 1966," M.E. Economic Digest (Monthly Statistic and Documentary Service), January 1966, p. 1 and "Recent Conference Resolutions," Middle East Commerce, IX (February 1966), p. 18.

that:

The Conference having heard the statement of the Head of the Libyan Delegation concerning the unjustifiable basis on which Libyan prices have been calculated since their inception, and also on Libya's rightful claim for a separate upward adjustment of posted prices f.o.b. Libyan ports in light of current tanker freights, notes that such an upward adjustment is fully in keeping with the laws and agreements in effect in Libya, and that it is justified by the prevailing economic conditions in the international oil industry, expresses its concern over any delay by the oil companies to fulfill their obligations with respect to a Member Country, resolves to support fully any appropriate measures taken by the Libyan Government to safeguard its legitimate rights in these two matters.[22]

Although it is difficult to ascertain how much effect these OPEC resolutions had or will have on companies operating in Libya, it unquestionably was and is of great satisfaction to Libyans to know that their efforts for increased revenues would not be greeted with attempts by other producers to undercut them. _Par contre_, despite the fact that Libya has at times not strictly adhered to OPEC's production quotas (mainly as a result of the efforts of companies to develop prolific new discoveries in Libya); it can be argued that operators in Libya could conceivably market their substantial reserves more rapidly if they were willing or encouraged to engage in price-cutting practices, notwithstanding the repercussions that this might have on

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[22] "Resolutions of OPEC's XIII (Extraordinary) Conference," _M.E. Economic Survey_, X, 49 (October 6, 1967), p. 1.

total revenues accruing to the Libyan treasury, to seize a bigger share of the European markets from more distant and disadvantaged competitors. In this respect, then, and by virtue of its sheer size of present and potential production, Libya is an important partner in OPEC.

C. Economic Implications of Libyan Policy in Regard to Neighboring Countries

Libya's position in the Arab world has more than once placed the country in an embarrassing situation. The country is, in effect, situated so that it can not help but be affected by events emanating from its more populous neighbors to the immediate east or immediate west. Out of solidarity to the cause of Algerian independence, Libya refused during the Algerian war to authorize the French to construct a petroleum pipeline from Edjelé in Algeria to Zuara on the Libyan coast. Shortly thereafter, Tunisia agreed to a similar French proposition, and has since gained handsomely from the influx of rental fees. Similarly, Libyan longshoremen and importers refused to unload French ships as well as Italian vessels carrying French goods, despite alluring wage offers by mystified French businessmen. At one point, a French ship bringing wheat for Libya was

waved away without unloading its cargo.[23]

On the other hand, Libya does not seem to have shown much interest in economic associations with neighboring countries. Certainly, Libya has attended conferences of Maghrebi technicians in order to try to coordinate trade and services,[24] but the Libyan attitude, in general, toward such regional groupings can perhaps be most harshly described as suspicious, or at best apathetic, with the result that Libyans have been extremely reluctant participants, at least in a financial sense. Two examples should suffice to illustrate this point. In 1959 Libya joined the Arab Financial Institution, the economic arm of the Arab League, but offered to subscribe to only 1.88% of the body's funds; whereas Jordan contributed 2.8% and Egypt 50.29%.[25] The African Development Bank, established at the Conference of African Foreign Ministers in Khartoum in the summer of 1963, received contributions of $30 million from the

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[23] "Libyan Workers Boycott France," Arab World, January 25, 1961, p. 6 and "French Boycott in Libya," Arab World, January 27, 1961, p. 5.

[24] See for example "Maghreb Talks," M.E. Economic Digest, IX, 13 (March 26, 1965), p. 145; "Inter-Arab Meetings," MEED, IX, 22 (June 4, 1965), p. 253; "Maghreb Trade Commission," MEED, IX, 43 (November 12, 1965), p. 507; "Expansion among Maghreb States," MEED, X, 8 (February 2, 1966), p. 86; "Maghreb Motor Industry," MEED, X, 12 (March 25, 1966), p. 135; "Maghreb Cooperation Talks," MEED, X, 29 (July 29, 1966), p. 345; and "Maghreb Relations," MEED, X, 44 (November 25, 1966), p. 591.

[25] "Arab League Economic Council," M.E. Economic Digest, III, 3 (January 16, 1959), p. 25.

U.A.R., \$24.5 million from Algeria, \$15.1 million from Morocco, \$10.1 million from Sudan, and \$6.9 million from Tunisia. Libya signed the authorization for the bank, but two years later still had not pledged a cent to help launch the organization.[26] This tendency toward a certain aloofness earned Libya some harsh criticism from other Arab states. One Beirut weekly, as early as 1960, blamed Libya's oil wealth for exacerbating this outlook and warned that Libya should strive for "stringless political independence."[27]

(1) The June War and Its Aftermath

The sternest test for Libya to surmount has indubitably been the June war. On June 1 Libya officially announced that it would "cut off the flow of oil to any state taking part in or supporting Israeli aggression." Four days later Prime Minister Husain Maziq sent a communiqué to Egypt expressing Libya's full support. Prophetically, Rajab al-Naihum, the President of the Libyan General Federation of Labor Unions, delivered a speech on May 23 proclaiming that Libya would be the "first to implement the decisions of the International Confederation of Arab Trade Unions' Central Council and

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[26] "African Development Bank," M.E. Economic Digest, IX, 35 (October 1, 1965), p. 434.

[27] "Oil Wealth Reported Cause of Libya's Isolation Policy," Arab World, November 15, 1960, p. 9.

apply them to the letter."[28]

After the Israeli attack, Oasis's employees sent false and inflammatory messages by Telex and tried to interfere with terminal work and thus succeeded in forcing the company to stop its operations.[29] On June 7, fearing widespread civil riots (the water pipes of Wheelus A.F.B. had already been blown up), the Libyan Government ordered a complete halt to operations despite the fact that it would thus forfeit nearly $2 million in oil revenues for every day of inactivity.[30] Nearly two weeks later, on the seventeenth, a meeting was held in Tripoli at which time oil workers affirmed their unanimous support for the stand of the "Arab nation in its struggle for the liberation of Palestine and for preserving the dignity of the Arabs" as well as the denial of oil to "aggressive countries" and local facilities for British and American aircraft.[31]

The Libyan newspaper ar-Rayid suggested on June 19 that the companies and expatriate employees should

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[28] "Libya Will Cut Off Oil Supplies to Aggressor States; Says Oil Minister," Arab World, June 2, 1967, p. 10.

[29] "War Starts Scramble for Crude," Oil and Gas Journal, LXV, 24 (June 12, 1967), p. 47.

[30] "Abrupt Halt in Libya," Petroleum Press Service, XXXIV, 7 (July 1967), pp. 247-248.

[31] "Oilmen Return to Work," M.E. Economic Digest, XI, 24 (June 22, 1967), p. 436.

hand over a "reasonable proportion of their profits to a special fund in order to rearm the Arab forces and revitalize Arab economies.[32] The Arab Foreign Ministers met in Kuwait on June 22, but did not take any decision regarding petroleum other than to maintain the embargo on oil to Great Britain and the United States in accordance with the June 4 Baghdad Declaration to the effect that any company selling oil to a nation siding with Israel would be construed as "an aggressor" against the Arab peoples. Libya, however, was the only Arab producing state to go beyond this by halting all oil exports and it maintained its embargo longer than any other country.[33]

Early in July Prime Minister Mazak called for a resumption of oil sales to countries other than Great Britain, the United States, and West Germany. Members of the Libyan General Workers Federation protested this to such an extent that Mazak turned in his resignation. The union then faced the new government with a general strike to demonstrate its hostility to any oil shipments.[34] Nevertheless, on July 3, the Libyan Govern-

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[32] "Arab Press Comment," M.E. Economic Survey, X, 34 (June 23, 1967), p. 7.

[33] "With Arab Oil Struggle," Arab Oil Review, VI (June 1967), p. 9.

[34] "After a Month: Little Middle East Progress," Oil and Gas Journal, LXV, 28 (July 10, 1967), p. 94.

ment--indicating the extent to which it differed from the influential union--officially announced that it planned to resume shipments to five northern Mediterranean countries that collectively represented approximately 30% of its habitual customers.[35] The reason advanced for this decision as explained by the official Libyan News Agency was that, "It has become clear that Libya's ban on exports to Western Europe has had no effect at all since Western Europe has been able to meet its oil requirements from other countries." Overzealous members of the Oil Workers Union executive who did not view matters in this light were imprisoned for their actions.[36] Meanwhile, the Libyan press criticized "certain Arab oil-producing countries" of trying to drive Libyan petroleum from "some foreign countries", particularly from West Germany. The Libyan News Agency then noted that the Libyan boycott was boomeranging as Tunisian, Egyptian, and Lebanese ports were eagerly assuming business normally handled by Libyan ports.[37]

Once again Libya gained precious little recompense

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[35] "Comments of the Month," Arab Oil Review, VII (July 1967), pp. 12-13.

[36] "Ban Ineffective," M.E. Economic Digest, XI, 27 (July 17, 1967), p. 491.

[37] "Libyan Oil Markets 'Taken Over'," M.E. Economic Digest, XI, 29 (July 27, 1967), p. 525.

for these acts of solidarity. President Nasser did inform the Libyan ambassador in Cairo that Libya had done more than two times what was expected and that Arabs would never forget its "splendid attitude."[38] Subsequently, Libyan-Egyptian relations, and especially commercial relations, have become more cordial than they had been for some time.

In early August Libya announced that "friendly states" were authorized to import as much as one quarter of their total oil needs from Libya in order that production might return to near-normal levels while Great Britain, the United States, and West Germany would still be blacklisted.[39] At an August meeting of Arab Finance Ministers in Baghdad--that was in several ways a precursor of the Khartoum summit--Libya went a step further and urged that the three countries, especially West Germany, be stricken from the blacklist, although it announced that it would continue to apply the oil embargo if the other Arab states did likewise.[40]

Pledges to partially underwrite Egypt's <u>redressement</u> following the June war in a manner somewhat similar

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[38]"Ban Ineffective," <u>op. cit.</u>, p. 491.

[39]"25% of Total Requirements Permitted," <u>M.E. Economic Digest</u>, XI, 30 (August 3, 1967), p. 544.

[40]"Finance Ministers Meet in Baghdad," <u>M.E. Economic Digest</u>, XI, 32 (August 17, 1967), 584.

to that suggested by the ar-Rayid editorial have further added to Libya's financial burden. Libya extended to Egypt £L 20 million in the month of the war and then pledged £L 30 million more over a one year period at the Khartoum summit. Total Libyan aid to Arab countries following the war amounted to about 40% of Kuwaiti aid,[41] but perhaps more significant than this is the fact that the Libyan Government agreed to such assistance at all, given its past reluctance to engage in any such activity on a massive scale. In striking contrast to these developments, however, is the evidence of strong Libyan reservations about the Arab Economic and Social Development Fund as Libya pledged only £L 1 million (which represents the same amount offered by the Sudan) to this organization.[42]

(2) Arab OPEC

An indirect result of the oil embargo following the events of June was the formation on January 10, 1968 in Beirut of the Arab OPEC by Kuwait, Libya, and Saudi Arabia. These oil-rich states advocated at the Khartoum summit conference that oil operations should be maximised for the benefit of the Arab world, especially for those

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[41]"Limit to Generosity," M.E. Economic Digest, XII, 25 (June 21, 1968), p. 571.

[42]Ibid., p. 571 and "Arabs Split over Development Fund," M.E. Economic Digest, XII, 21 (May 24, 1968), p. 463.

states whose armed forces bore the brunt of the June war. The three members hold roughly 60% of the total proven reserves of OPEC, but say that membership in this organization is open to any Arab state whose main source of income is derived from the sale of petroleum exports. This new formation hopes to foster cooperation among its signatories in all aspects of the oil industry while not jeopardizing their rights. It plans, notably, to coordinate their oil policies through the exchange of information and joint training programs for citizens of member countries plus the eventual undertaking of some joint developmental projects.[43] It remains to be seen whether Arab OPEC will, by virtue of its own exclusiveness, prove to be constructive, irrelevant, or even harmful to the interests of its founders, on the one hand, and to the other OPEC members and world producers on the other.

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[43]"News and Events," Arab Oil Review, V (January-February 1968), p. 24.

Chapter III

POLICIES OF CONCESSIONAIRES AND THE ECONOMIC DEVELOPMENT OF LIBYA

A. Petroleum Companies

(1) Esso Standard of Libya

This major company, *par excellence*, began its exploration in Libya in 1954 with a total of three American geologists and three Libyan employees.[1] Then, as noted earlier, Esso discovered the first commercial field at Zelten on June 13, 1959, in the Sirte Basin. By August 1961 Esso had finished pipelines running in both directions from Zelten to the artificially-constructed port of Mersa el Brega, located slightly to the east of the southern extremity of the Gulf of Sirte. Esso officials had originally estimated that the pressure of their field was not sufficient to extract petroleum without injecting imported sea water into its wells, but earlier this year Esso lifted its billionth barrel of Libyan oil (80% from its Zelten field)--all without the benefit of artificial pressure. Furthermore, the company expects to extract its second billionth

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[1]Michael J. Wells, "Esso in Libya--Atshan to Gas Export," *World Petroleum*, XXXVIII, 3 (March 1967), pp. 40-42, and 45.

barrel within four years. Esso's cumulative efforts thus far, have accounted for almost 45% of total Libyan production. The pipe, which Esso completed to carry the seawater to Zelten, will instead be used to transport gas from Zelten to Mersa el Brega later this year (1968) when the gas liquefaction plant at that port commences operations.

Esso completed its unique bow-mooring rig at Mersa el Brega in February 1963 to permit tankers to moor from its bow and rotate about its central structure, located two kilometers offshore, in order to load cargoes throughout the year and thus avoid the otherwise delaying caprices of all but the severest winter storms in the turbulent Gulf. Since then, this single bow-mooring rig and its berth have loaded more than one-half of the petroleum passing through Mersa el Brega.[2]

After extensive chemical analyses, Esso announced in 1961 its posted price of $2.21 per barrel of 39°-39.9° Zelten crude. This price subsequently became the basis by which other companies determined their posted prices for Libyan crude. The Libyan Government protested this posting as being too low for crudes with low sulfur content such as those typical of Libyan fields. In a 1966 interview with _Tripoli Mirror_, Esso Libya President

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[2] _Economic Review of the Arab World_, II, 3 (March 1968), pp 37-38.

Hugh de Wynne explained his company's decision on the Zelten posting in the following manner:

> Recognizing that the value of a crude to any one refiner depends upon his refining equipment, efficiency, and the products he wishes to produce, Esso, like producers throughout the world, took into consideration the quality, gravity, and location of its new Zelten crude in estimating its posted price. In 1961, Esso took into account the favorable low sulfur and unfavorable high wax characteristic of its Zelten crude, as well as its high gasoline, low fuel yield, which is contrary to the European demand pattern....the proximity of Libya to the European market, reflected in lower freight rates, was also taken into account. The careful consideration of all these factors led us to the establishment of the $2.21 posting for our 39° gravity f.o.b. Brega.[3]

Until the 1965 amendment was added, companies were paying taxes on crude at prices well below this rate. The average realized price for 1965 was $1.77/barrel, although the sales of Oasis crude, it is thought, often ranged between $1.40 and $1.50.[4]

Esso has continually expanded facilities at Mersa el Brega. By the end of 1966 there were four desalination plants processing 660,000 gallons of water per day and two more adding a capacity of another 400,000 gallons/day were en route. These plants are each capable of twenty-four hours/day operations in the

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[3] "Esso Chief Comments on Zelten Posting," M.E. Economic Survey, X, 4 (November 25, 1967), p. 7.

[4] "Selling Libyan Crude," op. cit., p. 285.

production of pure water.[5]

Esso holds one half interest in the Raguba field which produces about 125,000 barrels per day, less than a fourth of Zelten's daily output. To obtain the right to prospect in this concession, however, Esso agreed to build and operate a refinery satisfying Libya's needs, if oil were found. After much stalling on the interpretation of the economics of this agreement, Esso finally inaugurated its 8,000 barrel/day refinery in early 1967; which it had built in Antwerp, Belgium and towed to Mersa el Brega by barges.

The third most productive Esso field is named Jebel and it adds an average of 45,000 barrels/day to the company's output. Other commercial fields of the company are currently much less important. In September 1967 Esso tentatively acquired 50% interest in the exploration permits of western Libya, where it had originally drilled the kingdom's first productive oil well. Additional smaller discoveries have been made in this part of the country (none yet by Esso, however), but even when taken collectively they do not yet justify the construction of transport and loading facilities.

Esso Libya, like its Venezuelan counterpart Creole,

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[5]"Esso Libya Speeds Up Desalinization," Middle East Commerce, IX (July 1966), p. 56.

is making an important contribution to the education of Libyans. More than one-third of the companies' employees are enrolled in training programs, most of these at the Mersa el Brega training center. In 1966, seventeen were, in addition, studying in foreign universities on company scholarships. Esso was also underwriting a program whereby ten Libyan nonemployees could study in the United States while eighteen others from the Islamic Arts and Crafts Schools were being supported in British schools. At the University of Libya, Esso has financed the salaries of three professors and has offered to increase this aid.[6] Activity at Brega in 1966 also included the completion of 115 residential units, 27 staff and bachelor house units, and several communal projects. Another 50 family units plus 28 bachelor and 5 staff units were still under construction.[7]

(2) Oasis

Esso was replaced in its position as Libya's number one producer in 1966 by the Oasis group of independents composed of the Marathon (ex-Standard Oil of Ohio), Continental, and Amerada companies. Today, however, both Oasis and Esso look as though they are going to be edged out of Libyan production leadership

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[6] "Esso's 1966 Operations," M.E. Economic Survey, X, 15 (February 2, 1967), p. 11.

[7] "Company Activities," Arab Oil Review, IV (September-October 1967), pp. 9-13.

by the rapid vedette, Occidental. Oasis possesses two prolific concessions which both have multiple producers. The first of these (concession 39) began operations in 1962 when the company completed a 30 inch pipeline from its fields to the Ras Sider terminal, the most westerly on the Gulf of Sirte. The pipeline was extended southeasterly in late 1964 to reach Gialo, block 59's major field, and one of the most significant in Libya (at approximately 350,000 barrels/day.) Oasis pipeline capacity has subsequently been boosted by the addition of loops and new power stations to accomodate continually increasing production.

One-sixth of Oasis's output is marketed by Shell which concluded an agreement in 1966 with Amerada to buy one-half of the latter's production. Prior to this accord, the joint Anglo-Dutch company had been purchasing Amerada crude on a pay-as-you-go basis. Otherwise Oasis markets had been established by resorting to a system of discounts as permitted by Libyan legislation until the 1965 amendments came into effect. Continental and Marathon both deemed it necessary to purchase or construct refineries in West Germany, Italy, the United Kingdom, and Spain to establish long-term guaranteed outlets for their Libyan crude. In the meantime, both were extremely reluctant to sign the amended petroleum law and forego revenues that they had been consecrating

to the acquisition of downstream facilities in Europe. The Oasis group has moreover been accused of refusing to expand production or exploration following the passage of the amendments and of generally being less cooperative with the Libyans than some of the majors.[8] Later, however, the Continental Company offered to give the government a share of its marketing operations in a bid to obtain new exploration permits. This was well-received by the Minister of Petroleum Affairs who said that,

> This was a most important development. It was the first real offer to make a producing government a full partner in downstream operations. Unfortunately the offer--which was made by Continental as an alternative to the full effect of the new price and royalty legislation--came too late at a time when new arrangements had already been irrevocably decided on. Had they been made a year ago, we would certainly have given it serious consideration.[9]

(3) Mobil/Gelsenberg

The major Mobil has teamed together with its German refining and distributing partner to obtain fourteen concessions in Libya. In each case, Mobil holds 75% interest and Gelsenberg 25%. From 1963 until 1965 these two partners, plus the Amoseas Company, rented pipeline facilities from the Oasis group to transport

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[8]"Who Is the Stupid Ostrich," Arab Oil Review, III (June 1966), pp. 28-29.

[9]"Libya Envisages Downstream Integration for National Oil Company," M.E. Economic Survey, IX, 42 (August 19, 1966), p. 3.

about 100,000 barrels of petroleum per day. Then in December 1964 a special pipeline was completed to the Ras Lanuf terminal (located between Ras Sider and Mersa el Brega) in which Mobil originally held a 70% interest and Amoseas 30%.

The compelling reason for the construction of the third terminal and its intricate system of pipelines was the delineation of the importance of Amal field which by March 1965 had its own link with Ras Lanuf. Lately, the field has been producing about half as much as Oasis's Gialo, but this is not a true measure of its importance; because even before it was thought to be connected with two other major fields operated by two other countries, Amal was credited as englobing a huge 500 square mile producing area.[10] An indication of how promising the field is can be judged from Mobil's recent decision to construct a separate and larger pipeline to service the Amal-Nafoora-Augilla field.[11]

In August 1966 Mobil posted a price of $2.10 per barrel for its oil from the Amal field--effective retroactively to March 29, 1966. On the basis of a reduction of two cents for each degree of API variation, Mobil

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[10] "Oil Industry News," Economic Review of the Arab World, I (March 1967), pp. 45-46.

[11] "Esso Launches New Western Desert Search," Oil and Gas Journal, LXV, 52, (December 25, 1967), p. 114.

might have been expected to post a price of $2.15 per barrel. The company emphasized, however, that Amal crude was abnormally waxy with a fairly high pour point, causing handling difficulties and rendering transportation at low temperatures impossible. The Minister of Petroleum Affairs expressed official objections to the new posting, basing his arguments in terms of articles five and fourteen of the Petroleum Law which define posted prices as:

> The Posted Price means the price f.o.b. seaboard terminal for Libyan crude of the gravity and quality concerned arrived at by reference to free market prices for individual commercial sales of full cargoes and in accordance with procedure to be agreed between the concession holder and the Ministry, or if there is no free market for commercial sales of full cargoes of Libyan crude then the posted price shall mean a fair price fixed by agreement between the concession holder and the Ministry or in default of agreement by arbitration having regard to the posted price of the crude of similar quality and gravity in other free markets with necessary adjustments for freight and insurance.[12]

Mobil's partner, Gelsenberg, and the operator of the Nafoora field, Amoseas (Caltex), subsequently announced posted prices of $2.10/barrel. Meanwhile Mobil agreed to advance a temporary payment on the basis of the posted price of $2.15 without agreeing to the higher price or prejudicing its rights until agreement with the government could be reached.

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[12] "Mobil in Trouble," P.P.S., XXXIII (November 1966), p. 428.

(4) British Petroleum (BP) and Nelson Bunker Hunt

These two companies hold joint title to Sarir which is yet another of Libya's mammoth fields. Sarir is reputed to contain at least 15 billion barrels of reserves and to be at least two times as large as the East Texas field, America's largest field.[13] Concession 65, situated some 320 miles south of Tobruk, was awarded to the American multimillionaire Nelson Bunker Hunt in 1955. In 1960 he sold 50% interest in his concession to the British Petroleum Company (BP) on condition that that British major mount all exploration and any possible production operations. A year later BP discovered Sarir and on February 14, 1967 a 34 inch cathodically-protected pipeline was officially inaugurated between Sarir and Mersa el Hariga in the recently-dredged harbor of Tobruk.

Approval for the construction of this pipeline was reportedly delayed pending the reluctant signature by Bunker Hunt of the 1961 amendment to the Libyan Petroleum Law. The properties of Sarir crude: its waxiness, high pour-point--requiring heating to prevent solidifying during transportation, plus the need for special facilities at Tobruk to handle this type of crude have helped to explain the high costs of bringing Sarir into operation. An innovation at Tobruk has been

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[13] "Libya's Sarir Joins Monster Club," Oil and Gas Journal, LXV, 13 (March 27, 1967), pp. 45-48.

has been the application of compressed air bubbles on the seabed to protect the harbor against oil pollution. One result of these costs has been the attempt by the two companies to reduce their posted prices from an anticipated $2.17 to $2.10/barrel following the Mobil and Texaco postings on Amal and Nafoora crude.

Prior to the June war, Sarir was producing at the rate of 100,000 barrels/day. In April, 1967 the Managing Director of BP said in a New York speech that Sarir production would "probably never be greater than 150,000 barrels/day." Nevertheless, four months after this declaration output was already twice this figure and rising.[14] This spectacular jump can be attributed to the consequences of the June war, including the closing of the Suez Canal, and the desire for BP to meet its long-term commitments to European outlets by substituting Libyan for Gulf (principally Kuwaiti) crude.

Sarir crude comes from four gathering centers, one of which produces a less waxy crude with a lower pour point, which when mixed with the average Sarir crude, gives a blend that permits BP to realize useful economies in handling and transportation. Measures have recently been taken at Sarir, as in other Libyan

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[14] Frank Gardner, "Watching the World," Oil and Gas Journal, LXV, 35 (August 28, 1967), p. 51.

fields, to combat decreasing field pressure and the increasing salt water content of some of its wells.[15] When these conservation practices become fully operative, there will be no real reason to prevent Sarir from producing much nearer its 600,000 barrel/day capacity as defined by the Sarir-Tobruk pipeline.

(5) Occidental

Occidental only entered the Libyan scene in 1966 when it obtained concessions 102 and 103. Literally immediately after obtaining these grants Occidental crews swung into action and drilling equipment was ordered. Within two weeks of the signing, seismic work had begun. Drilling operations commenced within a month, oil was discovered in a year's time, and a pipeline was completed within eighteen months. Oil exports began from the refurbished port of Zueitina (northnortheast of Mersa el Brega on the Gulf of Sirte) on April 23, 1968. By the end of May a staggering 700,000 barrels/day were being shipped from this terminal.[16] The company's reserves are very conservatively estimated at more than ten billion barrels.[17] The

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[15] "British Petroleum/Bunker Hunt Start Remedial Program in Sarir Field," World Petroleum, XXXIX (February 1968), pp. 26-28.

[16] "Occidental's Production Miracle," Arab Petroleum and Economics, I, 2 (July 1968), 40.

[17] "Occidental Completes Third Idris Giant," Oil and Gas Journal, LXV, 47 (November 20, 1967), p. 157.

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[17] "Occidental Completes Third Idris Giant," Oil and Gas Journal, LXV, 47 (November 20, 1967), p. 157.

history of Occidental in Libya, if manifestly untypical, is at least a microcosm of the growth of the petroleum industry in Libya relative to that of the world and is particularly arresting as such.

Significant in the awarding of the two concessions to Occidental were two special stipulations whereby the company pledged to construct an ammonia plant in collaboration with the government and to devote 5% of its net oil profits to agricultural development in the Kufrah Oasis. In November 1966, the Augila field was discovered (subsequently it has proven to be an extension of the Amal-Nafoora field) and its eight wells have tested at 95,000 barrels/day of waxy, low-sulfur crude that is supposed to enter into production later this fall. On the basis of this discovery Occidental was already planning to build its own transportation facilities.

But then in May 1967 the company drilled three consecutively successful wells in concession 103, 40 miles west of Augila. These new discoveries collectively rendered over 150,000 barrels/day in test flows although work had to be terminated early because the company did not have adequate equipment to measure precisely the flow of oil.[18] Oil from this field, which came to be

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[18] "Occidental Discovery," <u>Oil and Gas Journal</u>, LXV, 23 (June 5, 1967), p. 81.

termed Idris after Libya's king, has proved to be of very high quality, its sulfur content is almost negligible, and it is not as waxy as Augila oil. Four months later a second field in concession 103 was discovered 5 miles east of the original Idris field. In October a third well 15 miles southeast of Idris produced a record test yield for a single well in Libya of almost 75,000 barrels/day. Occidental then decided to name the whole concession Idris, the first discovery being termed Idris A and the third Idris B. These two giant fields have been furnishing Occidental's exports from April 23 to the present.

It was to be expected that this much oil should prove to be exceedingly difficult for an independent to dispose of singlehandedly. This is especially true for Occidental which has no European refining or marketing operations of its own. Occidental therefore hastened to sign an agreement with Signal Oil and Gas Company to supply crude for Signal's refining and marketing operations outside the United States. In addition, Signal guaranteed markets for any of Occidental's output that it could not itself refine and distribute. A $1.2 billion merger of Occidental and the larger Signal company was planned but fell through.[19] Occidental retains, however, an option to purchase all of Signal's

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[19] "Occidental to Ship First Idris Crude This Week," _Oil and Gas Journal_, LXVI, 9 (February 26, 1968), p. 70.

$100 million assets outside of the United States.[20] Meanwhile, Occidental is following the path tread earlier by the Oasis group to diversify its own operations while its "agent", Signal, distributes Occidental oil to West Germany, Belgium, the United Kingdom, France, Italy, Yugoslavia, and Brazil.

Like most other companies operating in Libya, Occidental has involved itself in a posted price controversy with the government. The company posted a price of $2.23/barrel for 40° petroleum exported f.o.b. Zueitina in accordance with normal API practice of deducting 2¢ per degree of petroleum below 40°. The government contends that Occidental's initial exports will range between 42°-43° in gravity and that, therefore, the posted price is about 10¢/barrel too low.[21]

(6) Other Producers

The five preceding groups are by far the most important operating companies in Libya. The sixth most productive group presently is the Amoseas consortium, composed of Texaco and Standard Oil of California, which has already been mentioned in several connections with Mobil/Gelsenberg. For two years it rented, with Mobil,

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[20]"Occidental Offers $500 Million in Stock for Hooker," <u>Oil and Gas Journal</u>, LXVI, 14 (April 1, 1968), p. 94.

[21]"Libya Hits Occidental's $2.23/barrel Price," <u>Oil and Gas Journal</u>, LXVI, 6 (February 5, 1968), p.132.

the pipeline facilities of Oasis. Then, it became a 30% partner with Mobil in the transportation of crude to Ras Lanuf. Its main field, Nafoora, an extension of Mobil's giant Amal and Occidental's Augila, started functioning just after Amal in mid-1966. It has steadily increased in significance to the point that Amoseas has augmented its share of the Amal-Ras Lanuf line from 30 to 50%[22] as it anticipates the doubling of its 1967 production to 250,000 barrels/day which would surpass Mobil's planned level of 225,000 barrels/day.[23]

Phillips Petroleum and the Pan American Oil Company joined the companies sharing the transportation of crude to the Ras Lanuf terminal in mid-1965 and January 1966 respectively. Both companies experienced production problems in their comparatively midget-sized fields in 1966 which were both discovered after other companies had relinquished title to that part of their concessions.

(7) Discoveries in Western Libya

It is to be recalled that Esso made the first Libyan discovery in western Libya at a time when excitement was being generated in this part of the country by discoveries in neighboring regions of Algeria.

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[22] "News in Brief," P.P.S., XXXV (January 1968), p. 33.

[23] "Libya Joins the Giants," P.P.S., XXXV (March 1968), p. 88.

Since 1958 fields in western Libya have been found that could render anywhere between 40,000-100,000 barrels/ day of oil, but these are currently not being exploited for commercial purposes. It is likely that these fields would have been producing for several years already if Libya had not turned down France's request to construct a pipeline from Edjelé (Algeria) to Zuara (Libya) during the latter stages of the Algerian war. Be that as it may, outlays for necessary exploitation facilities are estimated to cost at least £L 11.5 million, or more than concessionaires have been willing to finance either singly or collectively. Interested companies have, nevertheless, indicated that they would welcome government financing of the main (600 kilometers in length) pipeline in western Libya. The Libyan Government has repeatedly studied this request, but has done nothing concrete to implement the project.

In addition to Esso; Gulf, Compagnie des Petroles Total Libye (Total), Phillips, Oasis, Shell, and British Petroleum all have shut-in wells in western Libya. Shell, in particular, has been continually frustrated in its attempts to locate commercial quantities of oil in Libya after having spent more than £L 23 million in the twelve year search it conducted.[24] In September 1967 an Esso bid to acquire 50% interest in the concessions

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[24] "Shell--Unlucky Giant in Libya," Arab Oil Review, III (July-August 1966), pp. 7-8.

of the other interested companies, conditional on its success in locating further potential producers by 1970, was approved by the government.

(8) Other Concessionaire Companies

Unlike some of the above companies, who have found commercial quantities of oil elsewhere in the Libyan desert, the following societies have yet to start production in Libya. Some, however, have struck oil. Many had offered novel terms to the government in an effort to obtain concessions coveted by the more established companies. Most received grants at the same time Occidental did in 1966.

A not untypical example would be American Mining and Exploration Company which agreed to all fourteen "preference points" requested by the government in the 1966 bidding plus the promise to undertake various development projects once production started or reached a certain level. About a year later this company sold 20% of its interest in its sole concession to Pantepec International and both companies began digital surveys in late 1967. Libyan Clark obtained two concessions in the 1966 bidding and, like American Mining and Exploration, started exploration work just before the deadline for this activity. Bosco, another American independent, received a warning from the Libyan Government before it started its exploration activities.

A special case is afforded by Circle Oil Company which also received a warning before undertaking exploration of its three concessions. The head of this company, one dubious Mr. Gett, was sought by the American Government on charges of income tax evasion and he did not bother to enumerate on his financial status as required by the Petroleum Law, nor his previous experience in the oil industry, nor supply a list of references of industry officials. Gett announced his acceptance of all the "elements of preference" in addition to making further offers of financial assistance. Apparently he planned to speculate on his concessions, but was not immediately successful.[25] Finally, the American independents Ashland Oil and Refinery with Whitestone Petroleum acquired the Circle Oil Company of "Geneva, Switzerland."[26]

Four other American midget companies were not as fortunate. The Mercury, Lion, and Libyan Desert Oil Companies each received a concession apiece in 1966, but had them revoked in May 1968, following an earlier warning, under terms of clause 27 of the Petroleum Law which requires companies to start operations in a

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[25] "Editorial," Arab Oil Review, III (October 1966), pp. 5-8.

[26] "News in Brief," P.P.S., January 1968, op. cit., p. 33.

"workmanlike" and "scientific" manner within eight months. Libya Texas Oil and Refining received three 1966 concessions, but had them all revoked for the same reasons.[27]

More established companies such as Phillips, Shell, Mobil, and Amoseas joined the above companies in receiving 1966 concessions. Furthermore, the consortium composed of Aquitaine, Murphy, Hispanoil, and Auxerap received two of these concessions and has subsequently discovered oil, but has not yet shipped any of it to any of the terminals. The two allied German companies Elwerath and Wintershall have also found oil in one of their four new concessions, but they have not yet marketed any of it. These two companies jointly hold two other concessions dating from 1958 and 1959. Ausonia Mineraria (AMI) of Milan shares with the American companies Pure and Westates a concession granted in 1960. The Italian national oil company (ENI), granted two concessions in 1960, has twice struck small quantities of oil.

Undoubtedly, the most interesting concession offered by Libya so far is also its most recent--awarded in April 1968 to the French national company, ERAP. ERAP has offered to extend 25% participation to the recently-established National Libyan Petroleum Company

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[27] "Libyan Government Revokes Concessions of Four Companies," M.E. Economic Survey, XI, 28 (May 10, 1968), pp. 1-2.

as soon as production begins in its 29,850 square kilometer concessions. This would be increased to 50% participation if production reaches 10 million tons/year. The Libyan Minister of Petroleum Affairs has said that Libya's share of profits on production according to formulas in this agreement would exceed 80%. The French company is to assume the full cost of exploration, which is fixed at at least $22.5 million (or sixteen times the minimum required by Libyan law)[28] over a twelve year period, if no commercial oil is found. All development and production costs will be divided equally between the two parties, but the French paid the Libyans a cash bonus of $1 million when the contract was signed, and will make additional payments of $3 million if commercial oil is discovered, plus $50 million if production reaches 50 million tons/year. France has also agreed to market as much oil from these concessions as Libya desires and to establish an oil institute in Libya. It can be presumed that French oil technicians now working with the Libyan Government would help staff it.[29]

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[28]"French-Libyan Oil Details," M.E. Economic Digest, XII, 17 (April 26, 1968), p. 354.

[29]"French Oil Group Awarded Concession in Libya," M.E. Business Digest, April 1968, p. 14.

B. Gas Operations

(1) History of Operations

It has been estimated that in 1963, 240 million cubic feet of gas were being flared daily.[30] As the production of petroleum increased in the country, and as gas is largely associated with petroleum, a corresponding increase in the production of natural gas has come about. As of May 1968 one billion cubic feet of natural gas was being recuperated and burned.[31] The proximity of growing European markets plus the abundance of relatively cheap supplies of this source of energy prompted Esso Standard to build a gas liquefaction plant at Mersa el Brega. This plant, started in May 1967, is to become operational in the fall of 1968 and its capacity will be about two and a half times greater than the Arzew, Algeria plant, heretofore the world's largest gas liquefying plant. Tankers will then ply the Mediterranean between Brega and points north, transporting liquefied gas in a manner not very different from the present method of carrying petroleum. Esso has already lined up two long-term purchasers for this gas. SNAM (of northern Italy) will take 235 million cubic feet of gas per day (which is the equivalent of

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[30] "Libya Rejoins the Middle East," Economist, CCIX, 6269 (October 19, 1963), p. 277.

[31] "Occidental Interested in Gas Project," M.E. Economic Digest, XII, 21 (May 24, 1968), p. 472.

50,000 barrels of petroleum/day) over a twenty year period and Catalana de Gas of Barcelona wants 110 million cubic feet of this gas per day (roughly 25,000 barrels/day) for fifteen years. Esso will thereby reduce by one-third the amount of gas now being flared in Libya and instead put it to commercial use.

ENI's SNAM was violently criticized by the Algerians for having concluded the above agreement with Esso Libya. The Algerians claimed that the Italians were trying to undermine Algerian socialism. The Italians replied that this deal would cover only a small part of Italy's needs so it did not necessarily mean that the Italians would never import Algerian gas. The Italians added that it was essential to achieve,

> A balance between the interests of producers and those of consumers by means of careful evaluation of all relevant factors: production, transport, refining, foreign exchange, and investment costs. Moreover, it is not fair to hold up as an example the privileged position which Saharan [Algerian] oil and gas enjoy in France, for this position--inherited from the economic ideas which took root in the days of 'Algerie-Française'--involves a rapid amortization of invested capital by means of rigid protectionism at the expense of the French consumer. On the contrary, what is necessary is to bring about conditions on all European markets which will make Saharan oil and gas competitive. ENI continues to formulate its policy in the spirit of collaboration and friendship with all African countries, from Tunisia to the Congo, from Nigeria to Tanzania. With this in mind, and with respect for mutual interests, we in Rome hope to bring to a successful conclusion the negotiations which have been going on with Algeria for several years.[32]

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[32] "ENI Defends Libyan Gas Deal," M.E. Economic Survey, IX, 5 (December 3, 1965), pp. 3-4.

Moreover, both Algeria and Libya are facing stiff price competition from other gas suppliers. It is true that Algeria's quoted price of 47¢/mcf compares rather unfavorably with the normal Russian price of 45¢/mcf--and the Soviet Union quotes a 42.5¢/mcf price for Western European customers, such as the Austrians; the 40¢ mcf offer by Shell-Esso for gas from the Netherlands (and consequently this gas is set at a price that does not threaten to undermine the Brega rate); the Dutch independent listing of 37-38c/mcf; and especially the recent Phillips North Sea offer of 28.7¢/mcf to the British Gas Council.[33]

(2) Technical Aspects of the Brega Plant

Since October 1964 Esso has been perfecting engineering techniques in the processing and export of liquefied natural gas, which will be refrigerated to -260°F. to be transported as a liquid. Two Italian companies are presently winding up their work on the two booster compressors which will receive gas from a pipeline inlet (this was built several years ago to transport seawater to inject pressure in the production of crude at Zelten, but Zelten crude does not seem to need this additional pressure) and compress it up to the required plant pressure. These two companies are also in the final stages of construction of the treating

[33]"Low Price Brings High Hopes," Oil and Gas Journal, LXVI, 14 (April 1, 1968), p. 99.

and drying section for removing acidic gases, other impurities, and water from the gas stream as well as the cryogenic section to cool the gas and the refrigeration section which is to supply cold air to the cryogenic section in order to liquefy the gas.

The heart of the £L 70 million project is the giant heat exchangers or cold box which will cool the gas as it rises in four towers. The first stage of cooling in the exchangers will be effected by seawater pumped through pipes at the rate of more than 250,000 gallons per minute. The gas will then be cooled by cooler gas as it circulates and rises in the towers. Next the gas will be moved by insulated pipes to one of the many storage tanks before being loaded aboard the specially-constructed tankers in the dredged Brega channel.[34]

(3) Possibilities for Libyan Gas

Not too long ago the Illinois Institute of Gas Technology was commissioned to make a report on the marketing of gas in Libya. Experts from this group estimated that Libya possesses 12 1/2 trillion cubic feet of gas reserves of which 9 trillion are associated with crude oil. The Institute advised that Libya invest $126 million for the domestic processing, transmission,

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[34] "News and Events," Arab Oil Review, IV (February 1967), pp. 28-29.

and distribution facilities plus a much greater sum for export-oriented plants. It stressed that Libyan gas is cheap, since it is produced in connection with oil production, and that several central European countries might demand such a gas. It pointed out that Libya could build, every five years, a liquefaction plant of a magnitude comparable to the Brega installation. The Illinois Institute also recommended that non-Esso gas furnish Tripoli and Benghazi with approximately 500 million cubic feet daily (which should double by 1973 and then again by 1988) to power the electricity generating plants, create a petrochemical industry, desalinate water, and supply a giant aluminum processing plant that would in turn assure nearly one-fifth of Europe's annual 250,000 ton requirement.[35]

Two other developments are pregnant with exciting possibilities need to be discussed in connection with Libyan gas. The first is that Occidental is already undertaking feasibility studies on the erection of a liquefaction plant at Zueitina to match Esso's el Brega.[36] The second is that plans have been announced for the construction of a plant to extract sulfur by-products

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[35]For an earlier gas report that presupposes some of these suggestions, see "News in Brief," P.P.S., XXXIII (May 1966), p. 193. Information on IIGT report was taken from: Frank Gardner, "Watching the World," Oil and Gas Journal, LXV, 9 (February 27, 1967), p. 87; "Natural Gas--A Valuable Sideline," P.P.S., XXXIV (April 1967), p. 149; and

[36]"Occidental Interested in Gas Project," op. cit., p. 472.

from Esso's liquefaction plant at Mersa el Brega.[37]

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[37] "Esso Awards Contract to Construct Sulphur Plant," *Arab Petroleum and Economics*, I, 2 (July 1968), p. 40.

Chapter IV

ECONOMIC SIGNIFICANCE OF OIL EXPLOITATION IN LIBYA

A. Libyan Receipts or Oil Company Expenditures

Having spent £L 500 million between 1957 and 1965 as indicated earlier, petroleum companies obviously played a great part in the mise en valeur of the country's economy. These expenses, in addition, accounted for an estimated £L 116 million of the government's total revenues of £L 166 million (70%) for the year 1965. The next year petroleum revenues amounted to £L 138 million (74%) of the £L 188 million that the government received. In 1967 petroleum revenues had risen to 170 million, or 75% of the increasingly diversifying contributions of the Libyan economy. In the year 1968-69, government revenues from the petroleum sector are expected to reach £L 275 million. By way of contrast, the second most lucrative source of revenue for the Libyan Government has recently been customs revenues which have generally accounted for about 11% of these government revenues, while taxes of all kinds have typically brought in only about 5% of the funds of the treasury.[1]

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[1] M.E. Business Digest, February 1968, op. cit., p. 28.

It was also observed that a significant portion of these expenses was devoted to the payment of wages to Libyan employees. This has in turn been reflected by a dramatic increase in personal incomes, for in 1950 the per capita income of Libyans was $50, whereas by 1961 it had reached $150. It should be born in mind, however, that these figures do not take into account an estimated 10% annual rise in the cost of living of essential items within the same period.[2] Nevertheless, it is incontestable that the impact of wages paid by oil companies was already considerable by this latter date.

One observer pointed out that Libyan petroleum workers earned twice as much for an eight hour day as their farming brethren earned in a ten hour day. The oil company employee benefited from other amenities as well. He received three balanced meals per day, he could accumulate furloughs and travel on company expense to almost any village in Libya to spend his leave. But these evident attractions have all helped to bring about a certain amount of economic disruption in critical oasis areas. Villages have been deserted, palm trees have withered from lack of attention, and water resources have been grossly misused as people flocked to the

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[2] "Oil and the Libyan Economy," M.E. Economic Survey, V, 30 (June 1, 1962), p. 6.

employment bureaus of oil companies in the larger cities.[3]

The Libyan Government has long been aware of these inconveniences as evidenced by the following ministerial statement:

> Oil is not a double but a multi-edged weapon. If we do not take advantage of the experience of others and devote our oil income to the development of our durable resources, then I fear that we shall squander our oil wealth in a manner that will give rise to innumerable economic and social evils. It suffices me [sic] to point out that oil could be a curse rather than a blessing. We are therefore determined to avoid the pitfalls of oil and at the same time develop our other potential resources. Oil is a wasting asset and will not be available permanently, as is borne out by studies on the subject. There is also the example of other primary resources, such as coal, which have lost much as a result of recent developments and discoveries.[4]

Economic experts have continually stressed the fact that the petrochemical industry by itself can rarely employ more than 5% of the labor force even where it represents more than 90% of a country's export earnings. In Libya the percentage of workers engaged in such employment is at least as great as in other petroleum exporting countries due to the proliferation of oil companies and their need for auxiliary facilities. Still, by 1963, the Libyan petroleum industry employed

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[3] Frederic C. Thomas, Jr., "The Libyan Oil Worker," Middle East Journal, XV, 3 (1961), pp. 264-270.

[4] "Final Approval for Five Year Plan and 1963-1964 Budgets: Estimate of New Planning Board," M.E. Economic Survey, VI, 39 (August 2, 1963), p. 4.

only 12,600 people, of whom nearly a third were non-Libyans.[5] A couple of years later wages for workers in urban areas had gone up by another 50% and employers outside the petroleum sector were experiencing great difficulties in garnering working forces.[6]

This massive influx of foreign capital and spurt in wages predictably led to inordinate price increases in other sectors of the Libyan economy. Between 1951 and 1957 the prices of food and clothing rose by approximately 15% and then by 10% between 1957 and 1961. The labels on meat (up 100%) and vegetables (25% increase) went up even more sharply in this latter interval. In the decade of the fifties, rents in working class areas rose by nearly 300%. Those in middle class districts of Benghazi rose by 150% after 1955 while the prices of commercial premises jumped by 175% and land skyrocketed in value. A plot in Benghazi that sold for $5,600 in 1957 brought $95,000 in 1961 (an increase of 1,700%).[7] Increases in food price-tags continued to fuel a general spiraling of prices into the mid-sixties. Compared with 1958 levels, food was 49% more expensive in 1965 while the comprehensive cost of living index rose by 11% in the

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[5]"New Horizons in Libya," P.P.S., XXXI (February 1964), pp. 56-58.

[6]"Where Sicilians are Welcome," Economist, CCXVI, 6366 (August 28, 1965), p. 804.

[7]"Oil and the Libyan Economy," op. cit., p. 6.

second half of 1965 alone.[8] Again, at 1964 levels, prices in December 1966 were generally 18% above those of January 1964 while food bills were 52% dearer in this same interval. Furthermore, rents doubled in the first five years of the decade of the 1960s, but government workers have been spared the inconveniences of this trend as they are all entitled to free housing.[9] This service reaches a large segment of Libya's active population, for it was estimated in 1964 that at least 60,000 of the 380,000 members of the working force were government employees.[10]

Official censuses have been taken of the Libyan population in 1954 and again in 1964. These are particularly enlightening in demonstrating the degree to which urbanization has taken place during the first decade of oil company expenditures. The second census has shown that the population of the country increased from 1.1 million in 1954 to 1.56 million ten years later. But more significantly, the population of Benghazi quadrupled from 70,000 to 280,000 while Tripoli's nearly

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[8] "Money and Foreign Trade," Economist Intelligence Unit: Quarterly Economic Review, n° 1, 1966, p. 17.

[9] "A Sort of Freedom," Economist, CCXVIII, 6396 (March 26, 1966), p. 1225.

[10] "Five Year Development Plan of Libya," M.E. Business Digest, VIII, 112 (April 1964), p. 37.

tripled from 130,000 to 376,000 in the same period.[11] It is undeniable that this increase can largely be explained by the fact that numerous rural inhabitants were lured to the two largest cities by opportunities created by the circulation of oil money. Recently, the municipalities of Tripoli and Benghazi have inaugurated long-range planning programs so that future expansion will be more orderly than in the past.

(1) Budget Expenditures and Development

Since the promulgation of Article 3 of the Oil Revenues Law Number 79 of 1958, 70% of any moneys received from the petroleum companies is allocated to development. The other 30% is divided equally between the province containing the producing concession and the administration of the federal government. Thus, it was decided that Libya's primary task was to finance the country's development by its perspective revenues from oil operations.

In 1964, having some idea of how much revenue could be expected from petroleum operations within its borders, Libya introduced its first Five Year Plan for development. The major emphasis was placed on the development of agriculture, as three-fourths of the Libyan labor force was engaged in pastoral occupations.

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[11] "Two By Products of Oil Boom," Economist Intelligence Unit: Quarterly Economic Review, n° 3, 1964, p. 12.

These agricultural projects included: land reclamation, farm modernization, reforestation and range development, sand dune fixation, livestock development, poultry production, plus the lending of technical assistance and farm machinery. The second major effort was to be placed on education: the construction of schools of all levels as well as ancillary equipment and facilities, university development, and educational projects. The plan also provided for the construction of numerous health centers, the equiping of laboratories and mobile medical units, and campaigns against tuberculosis, trachoma, malaria, and bilharziasis.

The Five Year Plan, in addition, called for the building of low cost housing, playgrounds, theaters, public halls, planning institutions, plus the reconstruction of the city of Barce. It indicated that textile, clothing, leather, wood products, furniture, pottery, chemical, and metal works were to be established and food processing industries developed. It provided for the construction of roads as well as the improving of telephone, harbor, airport, and meteorological services in addition to the extension of municipal services.[12]

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[12]"Five Year Development Plan of Libya," op. cit., p. 37.

The authors of the 1964 Five Year Plan could not have foreseen the massive increase of oil revenues nor the ramifications that this would have on development schemes. Therefore the first plan was replaced by a second Five Year Plan in December 1967. This second plan continued to emphasize agricultural development by allocating funds to projects devoted to: water resources, afforestation, the encouragement of animal husbandry, the combating of pests and agricultural diseases, agricultural guidance, and agricultural research. Specifically, the Ministry of Agriculture planned the afforestation of 5000 hectares of land in the mountains and 500 in the oasis areas of the Sahara, plus anti-wind barriers covering 7000 hectares. Furthermore, the Ministry is trying to reclaim 20,000 hectares of agricultural land per year.[13]

Within the framework of the Five Year plans are the annual ordinary and development budgets. A glance at these budgets reveals much about the aims of developmental efforts in the kingdom. The ordinary budgets are set up for the administration of the various ministries and include the remuneration of personnel. The habitual top four recipients in this category are the ministries of Education, Interior, Communications, and Defense in that order. The progression of their budgets

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[13] Economic Review of the Arab World, II (January 1968), p. 40.

in millions of £L from 1965 to 1968 is interesting to follow:

Item	1965		1966		1967		1968	
Education	17.9	(22%)	20	(23%)	20.8	(21%)	41.25	(24%)
Interior	14	17%	16.3	19%	18.5	18%	31.2	18%
Communications	8.2	10%	8.3	10%	9.5	6%	16	9%
Defense	7.9	10%	9.6	11%	11	11%	14.3	8%

It is significant that the total funds of the ordinary budgets have more than doubled in these four years from £L 79 million in 1965 to 170 million in 1968 and that the percentage of each budget devoted to the ministries of Education and Interior has remained relatively constant.

Until 1968 the (revised) development budgets were always slightly higher than the ordinary budgets. The sums in this budget are normally not devoted to a single ministry, but rather to specific projects that are then tallied under a general topic. Consequently, the relative and absolute figures often differ widely from year to year. Be that as it may, the most important entries from 1965 to 1968 have usually been public works, communications, agriculture, education, and housing. The progression of these items again in £L millions for the same years is as follows:

Item	1965		1966		1967		1968	
Public Works	17.1	(20%)	19.5	(21%)	23.6	(22%)	29.5	(24%)
Communications	22	25%	15.4	17%	19.5	19%	23.7	19%
Agriculture	9.4	11%	8.1	9%	7.9	7%	11.1	9%
Education	7.1	8%	6.7	7%	9.8	9%	13.8	11%
Housing	--	0%	18	20%	19	18%	12	10%

It is worth adding that the final development budgets for the years 1966-67 and 1967-68 were both tripled in relation to their original allocations to take into account increased (petroleum) revenues. There was no provision in the original allocations for housing, thus a prominent part of the additional revenues has been diverted to the construction of living quarters.[14]

(2) Imports and Exports

Petroleum exports and revenues, it goes without saying, have been instrumental in financing the importation of goods and services necessary for the development of various sectors of the Libyan economy. Prior to the export of petroleum, the Libyan balance of trade accumulated progressively huge deficits--£L 7.9 million in 1954, 10 million in 1955, 12.7 million in 1956, 18 million in 1957, 19.6 million in 1958, 24.1 million in 1959, which more than doubled to 56.0 million in 1960.[15] This deficit continued, but the trend was reversed

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[14] Economist Intelligence Unit: Quarterly Economic Review, various issues.

[15] J.L. Clarke, "Oil in Libya: Some Implications," Economic Geography, XXXIX (January 1963), pp. 40-59.

during the first two years that petroleum was shipped from Libyan ports. Then in 1963 independent Libya showed its first-ever trade surplus,[16] although it imported more each year, including as much as 30% of its food requirements.[17] 1963 petroleum exports accounted for £L 131.82 million (99%) of Libya's £L 133.53 million exports which largely offset the £L 85 million imports. The same trends can be discerned in subsequent years as petroleum products amounted to over 99% of the country's exports--in 1964, 248.08 million of £L 250.17 million exported; 280.33 million of 282.01 million of 1965 exports; and 351.01 million of £L 352.34 million exports in 1966. Meanwhile, imports in this period rose from £L 104.38 million in 1964 to 114.42 million in 1965 and £L 144.66 million in 1966. Libya's chief imports have traditionally been machinery, transportation equipment, and manufactured goods in general. West Germany, quite naturally, has been the number one importer of Libyan goods throughout this period followed by Italy and the United Kingdom. Italy has usually served as Libya's number one furnisher, followed by the United States and the United Kingdom.[18]

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[16]"Libyan Trade," M.E. Economic Digest, VIII, 25 (June 26, 1964), p. 298.

[17]"After Explosion," Economist, CCXII, 6308 (July 18, 1964), p. 259.

[18]"Foreign Trade," Economist Intelligence Unit: Quarterly Economic Review, various issues.

B. Developmental Projects

(1) Petrochemical

Many of the most exciting Libyan developmental projects have already been discussed in the preceding pages of this presentation under the topic of petrochemical progress. Since petroleum is Libya's most precious resource at the present time, it is only natural that efforts be focused around the development of this raw material. In addition to the efforts of the private concerns cited earlier, it should be stressed that the Libyan Government is itself undertaking or contemplating the undertaking of several petroleum-related projects, either with concessionaire companies or on its own initiative.

(2) Public Works

According to the original Five Year Plan drafted in 1963, public works projects were to receive the largest share of development allocations or 22.4% of the total £L 169 million. As pointed out earlier, the 1968 revised authorization for public works by itself accounted for more than 4/5 of this original allocation, but apparently there remain plenty of worthy projects, for public works projects have consistently been prominent in each of Libya's development budgets. One of the most spectacular of these projects has been the reconstruction of the agriculturally important city of Barce, which had been destroyed in a 1963 earthquake. This project en-

visaged the erection by two Polish firms of 430 residential buildings plus 20 other buildings to provide social and commercial services sufficient for the accomodation of 20,000-30,000 residents.[19]

Other important projects have centered around the construction and provision of the most modern medical facilities. In 1965 Libya alloted funds for the building of ten new 150-200 bed hospitals while a 700 bed hospital was simultaneously being added on the outskirts of Tripoli and another 230 bed hospital was being completed at Beida.[20] Another major undertaking has been the construction of complete sports cities at Tripoli and Benghazi.[21]

The provision of adequate public utilities services had been a concern of the Libyan Government even before oil revenues began to amass in its treasury. Lately, the government has accelerated its efforts by expanding the capacity of its electric power plant at Tripoli and

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[19]"Libya's Mineral Deposits," M.E. Business Digest, X, 134 (January 1966), p. 41 and "Road Projects," M.E. Economic Digest, IX, 29 (July 23, 1965), p. 342.

[20]"Oil Industry Creates Prime Market," M.E. Business Digest, IX, 132 (November 1965), p. 41. For other projects of this nature see "Aid from UNICEF for Health Services," M.E. Economic Digest, IX, 30 (July 30, 1965), p. 354 and "State Backing for Fishing Company," M.E. Economic Digest, X, 29 (July 29, 1966), p. 349 among others.

[21]"Oil Industry Creates Prime Market," op. cit., p. 41.

by building smaller power plants at Benghazi and in the Green Mountain area.[22] It has also speeded up its rural electrification programs.

(3) Agriculture

Agriculture received the second highest percentage (17.3 of funds authorized in the original Five Year Plan for development. This is not surprising in view of the fact that Libya has been importing much of its food and in light of estimates by experts that Tripolitania alone could provide enough food for twice the present population of the whole nation. In order to eventually reach this level of production, however, several burdensome problems first need to be solved: confused land ownership, fragmented farms, the apathy of youth towards farm labor, as well as the need for soil and water conservation projects and technical aid.[23]

To this end, various land reclamation surveys have been sponsored for the purpose of locating (water) well sites and then settling these prospective agricultural areas with bedouins.[24] Some resettlement has already

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[22]Ibid., p. 41.

[23]"After Explosion," op. cit., 259.

[24]See for example: "Land Reclamation Scheme," M.E. Economic Digest, VI, 39 (October 19, 1962), p. 463; "Forestry Progress," M.E. Economic Digest, VIII, 42 (November 6, 1964), p. 504; and "New Town at Barce," M.E. Economic Digest, VIII, 36 (September 25, 1964), p. 432.

taken place. The Agricultural Settlement Organization has, in addition, undertaken to construct irrigation works and has offered long-term loans to farmers to permit them to settle in promising areas.[25] The National Agriculture Bank is another agency that offers loans to Libyan farmers. It prefers to grant its interest-free loans for agriculturalists drilling water wells and installing mechanized irrigation plants. The government's Commercial Agriculture Transactions Agency also subsidizes the purchase of farm equipment, irrigation equipment, and seeds and fertilizers by farmers in order to extend to them the benefit of extraordinarily low prices.[26]

Not surprisingly, Libya has placed great hopes in the afforestation of its lands. As early as 1965, 8,000,000 seedlings of Australian eucalyptus and acacia seedlings had been planted on the edge of sand dunes and on private farms. Moreover, Esso Libya has experimented extensively with the spraying of sand dunes by petroleum products in order to stabilize them so that the seedlings might grow in an unimpeded manner.[27]

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[25]"Land Settlement Progress," M.E. Economic Digest, VIII, 38 (October 9, 1964), p. 456.

[26]"State Backing for Fishing Company," op. cit., p. 350.

[27]"Forestry Progress," op. cit., p. 504.

Libya's growing agricultural industry is supporting a modest diversification of Libyan industry. It is worth mentioning that nearly 2/3 of the kingdom's sugar requirements are presently being met by locally-grown and refined produce. This is a recent development.[28] In addition, the Occidental Company has undertaken studies on the feasibility of establishing a large chemical fertilizer plant; but this type of project has been discouraged by the experts from the Illinois Institute of Gas Technology, despite the availability of abundant supplies of natural gas which could fuel such a plant.[29]

(4) Communications-Transportation

This sector was to receive 16.2% of the funds allocated in Libya's original Five Year Plan. It is perhaps the major "prestige" sector and few developing nations would not care to boast of a rapid-speed highway or an elaborate communications system. In Libya much has been accomplished recently in this field. Libya's cross-country coastal highway has received abundant attention lately and it certainly qualifies as one of the best on the African continent. Feeder roads are being built into the Fezzan, but the routing of these has proven to be tricky, due to the danger of

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[28] "New Sugar Factory," M.E. Economic Digest, IX, 31 (August 6, 1965), p. 367.

[29] "Plans to Develop Petrochemical Plant," Economist Intelligence Unit: Quarterly Economic Review, n° 1, 1966, p. 16.

flash-flooding.[30]

A country as large as Libya is bound to turn to aviation in order to meet some of its internal as well as external transportation demands. In 1962 the National Libyan Airline's internal services were inaugurated. Subsequently, it has undoubtedly enjoyed more success than comparable national airlines of other developing countries, for air service remains the best way to travel from any one of the three distant provincial capitals to another.[31]

Meanwhile, the Libyan communications industry has rapidly grown up. The burgeoning electronics industry counted counted less than 15,000 radio receivers in 1962, but in 1967 there were an estimated 100,000 receivers in the country. In 1951 there were only 9,000 telephone subscribers in the whole country, whereas in 1967 there were close to half a million.[32] Better yet, ambitious communications plans have been laid for the future. Cable links have been planned to permit direct conversations between Libya and Sicily as well as between

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[30]"Road Projects," M.E. Economic Digest, IX, 29 (July 23, 1965), p. 342.

[31]"National Airline," M.E. Economic Digest, VI, 25 (June 29, 1962), p. 296.

[32]"Oil Rich Libya Must Lend, Spend Abroad for Stability," Middle East Commerce, X (March 1967), p. 34.

Libya and the other countries of the Arab Maghreb.[33] The national television system was launched in late 1966, following the example of television at Wheelus A.F.B. Radio Libya has been planning to install powerful transmitters in Benghazi and Tripoli that would enable it to reach listeners throughout the Arab world, southern Europe, and central Africa.[34]

(5) Human Development--Education

In addition to the prominent position accorded to education in the annual ordinary budgets of Libya, this item was to receive 13.3% of the funds of the First Five Year Development Plan. Education at all levels is free for Libyans. Currently, a major effort is being mad to provide quality education for an eventual enrollment of 10,000 students at each of the branches of the University of Libya at Tripoli and Benghazi. The United Nations has helped to establish several vocational schools in the kingdom. One of these, the Sidi Mesri school in Tripolitania, has offered advanced training in petroleum engineering for the last couple of years.[35] The oil companies cooperate in this and similar programs

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[33]"Direct Telephone Link to Europe Soon," M.E. Economic Digest, XII, 14 (January 8, 1968), p. 273.

[34]"Oil Industry Creates Prime Market," op. cit., p. 41.

[35]"College of Advanced Technology to Have Petroleum Engineering Department," M.E. Economic Survey, IX, 31 (June 3, 1966), p. 5.

and offer their own training programs as well, including the dispatch of Libyans abroad for training in certain fields, such as the functioning of communications systems.[36]

(6) Construction--Housing

The need for low cost housing in Libya was evident long before the Development Plan was issued in 1963. Two years earlier the following statement was made by the International Cooperation Association:

> These people...have enough food and clothing, but there is no adequate housing for them. This is an influential segment of society, future leaders--people who should be helped. Their influence will be most important in keeping the nation developing along democratic lines. Many Libyans have money for a 20-25% down payment on a new home, but there is no plan for mortgage financing.[37]

Still, the first Five Year Plan made no provision for the construction of housing units. The 1966-67 development budget was the first to allocate money for housing--it authorized £L 18 million for the construction of 18,000 units at 18,000 units at £L 1,000 apiece.

Nevertheless, private companies were established prior to the 1966 authorization, and began to engage in

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[36]"Libyans Train in U.K. for Work on New Oilfield Program," M.E. Business Digest, X, 138 (May 1966), p. 20.

[37]"Libya Housing Need Cited," M.E. Business Digest, V, 74 (May 1, 1961), p. 36.

the construction of two cement factories and gypsum plants which would subsequently be necessary for the mass production of houses.[38] In 1965 a Copenhagen company completed the construction of five factories each capable of producing thirty prefabricated houses per day. It began by using locally crushed sand and stone, but imported the cement until the two Libyan cement factories were constructed.[39]

(7) Industry

Obviously, development activity does not necessarily have to be associated with government budgeting. There was room for individual iniative in Libya, even before oil money began to prime the pump of demand for locally-produced goods. An industrial census showed that in 1965 11,000 Libyans were employed in 622 manufacturing firms employing at least five workers. These firms were collectively valued at £L 12.5 million.[40] Earlier it had been ascertained that 80% of all Libyan industry was concentrated in the country's two largest cities and that only 25 plants employed more than 50 laborers while the average manu-

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[38] "Two By Products of Oil Boom," op. cit., p. 12; "Building Boom," M.E. Economic Digest, VIII, I (January 3, 1964), p. 8; "First Masonry Plant," M.E. Economic Digest, VIII, 40 (October 23, 1964), p. 480.

[39] "Factories for Prefabrications," M.E. Economic Digest, IX, 6 (February 12, 1965), p. 80.

[40] "Industrial Census," M.E. Economic Digest, IX, 45 (December 3, 1965), p. 547.

facturing plant hired three to four employees.[41] The two largest industries in the country were engaged in the processing of olive oil and the repair of vehicles. Unlike most industries operating in Libya, the processing of olive oil is essentially externally-oriented.

Being primarily concerned with the attempt to satisfy local demands, it is readily apparent that many of Libya's more prominent enterprises have come into existence as a substitute for more expensive imports. This is especially true for activities relating to food and agriculturally-related industries such as: beer production (2.8 million litres in 1961), canning, fisheries, and bottlemaking, in addition to the previously-mentioned sugar refining industry.[42]

The factor of import substitution is hardly less important in the domain of manufacturing activity. The government's Industrial Development Corporation (IDC), moreover, has greatly stimulated small investors, by offering technical advice and loans of as much as 60% of the required initial capital outlay. Heavy investors, most notably the cement manufacturers and sugar refiners

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[41]"Manufacturing Industry," Economist Intelligence Unit: Quarterly Economic Review, Annual Supplement--1964, p. 29.

[42]Ibid., p. 29; "New Sugar Mill," M.E. Economic Digest, VIII, 20 (May 22, 1964), p. 235; "State Backing for Fishing Company," op. cit., p. 349; "New Industries," M.E. Economic Digest, XI, 3 (January 19, 1967), p. 57.

have also been extended the services of the IDC.[43] Other industrial activities existing in Libya prior to 1965 and benefiting from either import substitution needs and/or IDC loans were: a Norwegian paint factory,[44] carpet weaving establishments, leather working industries, and a printing works plant.[45] Then a modest metals industry,[46] foam rubber works,[47] textile, linen, and chemical factories were added during the course of the next two years.[48]

One final industry in Libya, tourism, deserves special mention as it is not only different from other industries, but it is also growing meteorically. In 1966, Libya welcomed 100,000 tourists, many of whom stayed in luxurious new hotels such as the Tejoura near

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[43] "Yugoslavian Firm Wins Contract," M.E. Economic Digest, VIII, 3 (January 17, 1964), p. 30.

[44] "Norwegian Paint Factory," M.E. Economic Digest, VI, 34 (September 14, 1962), p. 403.

[45] "Manufacturing Industry," op. cit., p. 29.

[46] "Development Projects," M.E. Economic Digest, IX, 15 (April 9, 1965), p. 175.

[47] "Foam Rubber Factory," M.E. Economic Digest, X, 34 (August 16, 1966), p. 435.

[48] "New Industries," op. cit., p. 57 and "Textile Factory for Tripoli," M.E. Economic Digest, X, 31 (August 19, 1966), p. 384.

Mersa el Brega, the Ras al-Hilal near the ruins of Apollonia,[49] or the Caravan Hotel in Tripoli.[50] Recently, the Hilton chain obtained permission, after prolonged negotiations to construct hotels in both Tripoli and Benghazi. It would seem, nevertheless, that Libya, like most other countries of the world, will continually need new facilities to satisfy the whims of increasing numbers of leisure-seekers (predominantly European), ranging increasingly farther from their native countries. Libya's sandy beaches and well-preserved Roman ruins form the basis of what could be a burgeoning industry (Tunisia has done much in this line with fewer attractions); but this may take several years to fully blossom, for tourists will not visit Libya in droves until Libyan prices drop considerably and tourist services increase commensurately.

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[49] "Tejoura Hotel," M.E. Economic Digest, IX, 35 (September 17, 1965), p. 415.

[50] "Hotel Construction Company," M.E. Economic Digest, X, 14 (April 15, 1966), p. 164.

Chapter V

HYDROCARBON AND ECONOMIC FUTURE OF LIBYA

The unprecedented rapidity of the development of Libya's petroleum reserves can not be overemphasized. The North African kingdom has advanced from the position of a simple aspirant in 1959 to the world's fifth ranking producer of crude in 1968. In the process, government revenues--principally as a result of the royalties and fees paid by concessionary companies--will have passed from £L 51,112 in 1961 to an estimated 275 million in 1968, thereby multiplying government capital resources by 5,380 times in less than an eight year time span. Government policy has been, and still is, to consecrate 70% of these oil revenues to economic development. Meanwhile, the government has done everything in its power to encourage the oil companies to invest in facilities that would also expedite development in Libya. The products of government policy and concomitant private iniative have been reviewed in the previous pages. Although it is never easy to predict future events with any degree of accuracy, this student would nevertheless like to venture a few prognostications on the future of petroleum in Libya and on the ramifi-

cations of its future on the Libyan economy; based, where possible, on past indications.

A. The Future of Petroleum and of Petroleum Products in Libya

A priori the future of petroleum appears to be bright for the forseeable future. Based on forecasts presented by G.P. Glass and cited earlier, petroleum consumption should double by 1985 to supply seventeen years hence an estimated 75% of the world's energy needs (compared with 60% of the western world's energy requirements in 1968.) These figures are not unreasonable, given current economic, political, and social factors. Population increases coupled with rising income and consumption levels should assure a steady growth rate of petroleum consumption in western countries. Eastern Europe seems to be on the verge of a revolution of sorts in the automotive industry that will stimulate demand for petroleum products as a whole. For better or worse, poorer countries of the world will undoubtedly continue to imitate some of the consumption patterns (notably in the field of transportation) of the more affluent countries. It is difficult to imagine that the use of fuel cells, as well as nuclear and solar energy will not become more widespread in the future, and consequently seize part of the fuel market that would otherwise have devolved upon petroleum. Never-

theless, the increased demand for energy as a whole should be such as to assure oilmen that petroleum products will not follow the same declining path as coal.

This means that present suppliers will be called upon to furnish increasing quantities of crude. The same reasons that have served to explain Libya's rapid increase in the past should militate once again in Libya's favor in the future and dictate that Libyan production will continue to grow at a faster rate than Middle Eastern oils. One source has already predicted that it is "within reason to forecast that by 1975, Libyan output could increase by 163.8% to reach 4.6 million barrels/day."[1] This would be sufficient to boost Libya into the number three position of world producers ahead of such titans as Iran with 4.4 million barrels/day and Venezuela at 4.3 million barrels/day assuming, as Frank Gardner does, that Iranian and Venezuelan production increase by 69% and 23% respectively between 1968 and 1975. Whether this will, in fact, take place is anybody's guess, but it is well within the realm of the possible. Given these predictions, the percentage of exports flowing to individual European countries should remain roughly the same as they are today, with countries such as Spain, France, Italy, Yugoslavia, Rumania, and Czechoslovakia gaining in relative importance as they increase their affluence and need for petroleum. By the

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[1]"Libya Eyes Number One Producer Rank," Oil and Gas Journal, LXVI, 13 (March 25, 1968), p. 98.

same yardstick, Great Britain and West Germany would probably take a smaller percentage of the Libyan oil than in the past.

One personal prediction is that there are still commercial quantities of oil to be discovered in Libya. This guess is predicated on the assumption that some of the concessions granted to the virtually-unknown companies have not yet been thoroughly explored and on the possibility that there might be commercial oil located further south in the desert than any concessionaire has thus far cared to look. There is also a chance that the Gulf of Sirte inself or western Libya may have some oil deposits that have been overlooked in previous searches.

Aside from any speculation about additional quantities of oil to be discovered in Libya, the fact remains that some of the companies operating in Libya presently have surplus pipeline capacity. Occidental could and should soon reach the one million barrel per day level, British Petroleum and Mobil/Amoseas have pipeline capacities of 600 and 300,000 barrels/day each, which have not yet been attained. Esso and Oasis are equally capable of augmenting their production, but by much smaller percentages.

Another near-certainty is that Libya will be

applying increased pressure to obtain participation in petroleum activities. The ERAP deal plus some of the 1966 awards can be interpreted as straws in the wind to this effect. Libya's OPEC and Arab OPEC partners (particularly Saudi Arabia) also seem to be very much intent on acquiring greater authority within concessionaire companies operating in their territories. Any success that they might obtain is bound to have repercussions on Libyan demands.

Concerning OPEC and its Arab cabal, Libyan policy will likely be to do nothing that might sabotage these organizations, primarily as a result of its gratitude for solidarity and advice rendered in Libyan-company dealings, and an unwillingness to injure the sentiments of fellow Arabs or radically upset the oil industry. On the other hand, it is not conceivable that Libya will be the most zealous member of either institution; and would, in particular, have serious reservations about ever reducing its production, or permitting an older producer to expand its production more rapidly than the Libyan rate, or reinstalling the OPEC discounts on posted prices if and when the Suez Canal is ever reopened.

The closure of the canal as well as solidarity expressed for the Algerian cause have amply demonstrated Libya's involvement in past Arab struggles. Libya did

not hesitate to forego its own wealth, if other Arab states expected this--and did likewise--in the event of a real or imagined Arab confrontation with any one or more of the western powers. However, it is not improbable that Libyans will try to maintain a greater degree of aloofness than in the past in regard to Arab struggles and concentrate more on internal and Maghrebi developmental schemes. Libya has been receiving handsome royalties for several years now and it would seem that Libyans would be increasingly reluctant to part with such resources, no matter how worthy the cause. After the June war, Libya fervently supported the oil embargo on oil bound for Great Britain, the United States, and West Germany, but the sacrifices that this entailed were doubtlessly not lost on Libyans. Nor is it likely that Libya would join with the other member countries of Arab OPEC in resisting any future efforts to tamper with oil production unless some very flagrant act (and not merely the allegation of such an act) were committed against other Arab states. The increased importance of non-Arab oil producers (including the Soviet Union) would once again give Arab, and particularly Libyan, leaders some cause for sober moderation in this respect.

As far as the level of future oil prices is concerned, the picture is more nebulous. It would seem

that Arab countries (especially members of Arab OPEC) would collectively resist any attempts to erode the present posted price system, yet the desire for greater national participation in concessionary activities could conceivably jeopardize this system as nations rather than companies vie for outlets for their petroleum products. The companies have heretofore resisted this tendency, but will find it increasingly difficult to stave off these demands in the future. If and when certain countries do assume sufficient control over petroleum activities and try to market this production, they will surely encounter stiff (price) competition from the companies. One possible compromise to this problem that might satisfy the amour-propre of all concerned would be for the companies to grant the states greater participation, while deducting a corresponding percentage of royalties accruing to the government from the companies' production.

One final observation about the future of hydrocarbons is that liquefied gas should become progressively more important in the next couple of decades, especially to the more affluent areas of Europe. Standard Oil of New Jersey has estimated that by 1975 there may be as much as three times the amount of liquefied gas shipped throughout the world, than represented at present by the

combined Libyan and Algerian contracts.[2] Libyan supplies of gas increase as oil production rises; for 1968 there will be an estimated 13.5 billion cubic meters of gas produced, by 1973 there should be 23 billion produced annually, and the 1988 production is expected to reach somewhere between 37 and 51 billion cubic meters.[3] Entretemps, domestic demand should provide an outlet for not more than 1.2 billion cubic meters in 1973 or 4 billion in 1988 assuming that the proposals suggested by the Illinois Institute of Gas Technology for the use of gas as a fuel are implemented. It is therefore essential that external customers be found for Libyan natural gas to limit the flaring of this resource. Given the fierce competition of other suppliers, one might have cause to be pessimistic about the chances of North African gas. The outlook appears to be both optimistic and pessimistic for Libyan natural gas. Pessimistic in the sense that significant quantities will continue to be flared (unless some process could be discovered to eliminate the need for flaring) and optimistic in the sense that additional consumers (in central and southern Europe will probably negotiate for purchases of Libyan gas. If this materializes, then additional liquefaction facilities will need to be

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[2]H.E. Montagu, "Future for World Trade in Refrigerated Liquefied Gases," World Petroleum, September 1967, p. 73.

[3]"Libya: Natural Gas--Valuable Sideline," op. cit., p. 149.

constructed in Libya. This is why Occidental has already commissioned feasibility studies on the establishment of a Zueitina plant to process some of its high BTU and rich condensate gas that is currently being produced at the rate of 1,000 cubic feet of gas per barrel of crude oil.[4]

B. The Libyan Economy in the Future

As Libya is one of the few countries in the world to revise its development plans upward due to unforeseen revenue increases, it is difficult to be pessimistic about the future of the Libyan economy. An indication of the requisite optimism can perhaps best be gathered from a United States Department of Commerce report indicating that the Gross National Product of Libya progressed by more than 40% in 1967 with the result that the per capita income of its citizens surpassed that of American residents by 25%.[5] Granted, oil revenues represented as disproportionate a share in this output as ever, so that one of the kingdom's most chronic problems is to achieve greater contributions from other sectors of the economy. Another threat to Libyan well-being is posed by the dangers of inflation. Eventually this problem should work itself out, but the rapid influx

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[4] "Occidental's Gas Project," Arab Report and Record, May 16-31, 1968, p. 134.

[5] "All Round Expansion," Arab Report and Record, June 1-15, 1968, p. 150.

of capital in a society that was only recently very primitive is bound to cause some hardships.

It is not to be expected that the exportation of other minerals will significantly add to the Libyan treasury. However, once again a personal prediction is that some important discoveries of at least one other mineral are going to be made as soon as systematic searches are mounted in all parts of the huge Libyan realm. This may take many years to happen.

Despite the assumption that government revenues should continue to fill government coffers, it would seem that there is a limit for certain development projects. Therefore government spending on the construction of houses, hospitals, schools, roads, and communications equipment will inevitably have to slow down in a few years time, as there should no longer be that many economically justifiable projects in these fields to undertake. There is not much point in building for building's sake. On the other hand, funds for education should continue to increase, for quality education costs money--and Libyans are likely to insist that they be afforde a quality education on their own soil. Furthermore, education, unlike a one-time construction project, is a continuing process.

Related to education are problems associated with

the labor force. Presently, Libya is faced with a growing labor shortage which is particularly acute in certain agricultural areas. A short-term solution to this problem can be attempted merely by importing certain groups of foreign laborers. This is hardly the answer for the country's longer range problems, for imported laborers are typically unskilled, so the problem of training remains unchanged. The answer would seem to lie in centrally-organized training programs designed to make the Libyan worker more interested in improving the lot of his family. Libya has, of course, already embarked upon such programs and has even begun to institute a set of fines for workers who refuse to enroll in literacy programs.[6] There is no inherent reason why Libyans can not or should not uplift themselves through such programs over a given time span. This is one reason why the staffing and ambiance of the universities at Tripoli and Benghazi will be crucial over the next few years, for the universities should attempt to gear their programs, as much as possible, to producing the types of technically-qualified citizens that will be most sorely needed in the development of the country's economy.

Agriculture should continue to figure prominently in any governmental and/or academic efforts, as agricultural rehabilitation is a most urgent need for the

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[6] "Fines for Illiterate Workers," M.E. Economic Digest, XII, 25 (June 21, 1968), p. 571.

country. Additional budgetary allocations could easily be accorded to this sector to bolster production by ensuring that scientific methods are progressively utilized by Libyan farmers. Afforestation programs will remain important for years to come in order to protect agricultural areas from the severities of Libya's desert climate.

The efforts of the government will be facilitated as private firms, both local and foreign, invest in Libya's future. The petroleum boom should beckon more and more groups to establish secondary industries and services within the country. At the present time, the most promising non-petrochemical area for private initiative is in the field of tourism. Libya incontestably has much to offer tourists: from miles of sandy beaches to sparkling Roman ruins placed in a rapidly transforming society with good transportation connections and mushrooming hotels.

Finally, it seems ineluctable that Libya will one day (in the 1970s) find that, like Kuwait, it has more revenues than it can rationally dispose of, especially in the midst of pressing needs of neighboring countries. Therefore, Libya would be well-advised to embark upon a program of financial assistance; limited, if necessary, to well-defined projects in certain countries. Libya will undoubtedly wish to confine such aid to African countries with the possible exception of Malta, and

would probably be very reluctant to extend any aid whatsoever to countries whose regime constitutes an anathema to Libyans. If circumstances then are similar to those of the present day, Libya would likely offer aid to Tunisia, Morocco, Egypt, and the Sudan in that order, but not to Algeria. Prime Minister Bakkush announced during a June 1968 visit to Rabat that Libya would participate indirectly in Morocco's Five Year Plan.[7] This could be a taste of things to come.

Libya's first offer of aid, however, came a year earlier when it granted a total of £ 20 million to Egypt and Jordan to help those two countries recuperate losses suffered at the hands of Israel. Then Libya pledged to extend £ 30 million to the same two countries at the Khartoum conference. It is now apparent that Libyans are having second thoughts about this aid and are not keen to grant it indefinitely. It can be assumed that unless these funds are converted to some productive projects in the recipient countries, Libyans will wash their hands of such commitments saying that they have honored their engagements. Already Libya has reverted to past niggardly tendencies by pledging only 1 million £L to the Arab Economic and Social Development Fund; while other states, especially Kuwait, plan to give much more. In addition, Prime Minister Bakkush recently implied in an interview with the Libyan News Agency

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[7]"Libyan Participation in Moroccan Five Year Plan," M.E. Economic Digest, XII, 24 (June 14, 1968), p. 522.

that payments to Egypt and Jordan were constituting an unnecessary strain on Libya's development. On the other hand, Libya did not have any qualms about concluding a £ 150 million defensive missile deal with Great Britain. The explanation for this deal remains nebulous in the extreme to this student, for one wonders why Libya does not apply this money toward the manifold possibilities for investment both within and without its borders instead of extending a reverse form of "foreign aid" to the British aircraft industry. It is puzzling, moreover, to imagine from which quarter Libya might fear an attack and why it chooses to divert desperately needed technicians from other fields to the operation of sophisticated weaponry. Libya could ingratiate itself more with its neighbors by granting loans not exceeding this £ 150 million, than by displaying mankind's latest (but ultimately obsolete) military hardware. It should be relatively easy for Libya to obtain informal promises from bigger powers (who are perhaps not adverse to assuring their own oil lifelines!) to aid it the event of any confrontation with a hostile power. Nevertheless, this arms deal shows the degree of opulence that Libya can already afford, so when contemplating the future--and even greater revenues--it is well nigh impossible to conclude on a pessimistic note.

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