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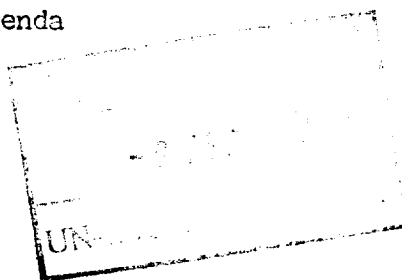
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The Practices of Transnational Corporations
in the Oil Industry in the ECWA Region*

79-2528

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PREFACE

This study has been initiated by the Joint CTC/ECWA Unit on Transnational Corporations, in accordance with ECWA resolution 42(IV) which states:

"The Economic Commission for Western Asia,
recognizing the extreme importance of the oil industry to the economies
of the region,

taking note of the programme of work and priorities for 1977 and the
biennium 1978-1979 for the Joint CTC/ECWA Unit on Transnational Corpora-
tions (E/ECWA/44/Add.1),

decides that the practices of transnational corporations in the oil in-
dustry in the region should be included among the issues covered in the above-
mentioned programme and given priority".

In carrying out this study, a mission to Iraq, Kuwait and Saudi Arabia was
undertaken to explore and determine the areas that governments considered important.

This study does not purport to be comprehensive and, in particular, it does
not discuss the ECWA region in isolation. However, it is believed that a key
benefit of the study has been to demonstrate a number of general features and
conditions of the industry that will be of continuing interest to the ECWA
countries. It is further hoped that this study will lead to the identification
of areas and practices that ought to be pursued and analyzed at greater length.

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List of Abbreviations

ADPC	: Abu Dhabi Petroleum Company
AMINOIL	: American Independent Oil Company
AMPTC	: Arab Maritime Petroleum Transport Company
APIC	: Arab Petroleum Investment Corporation
APSC	: Arab Petroleum Services Company
ARAMCO	: Arabian American Oil Company
BAPCO	: Bahrain Petroleum Company
BP	: British Petroleum
BPC	: Basrah Petroleum Company
CALTEX	: Caltex Petroleum Corporation; owned equally by Socal & Texaco
CFP	: Compagnie Francaise des Petroles
ENI	: Ente Nazionale Indrocarburi
EXXON	: Exxon Corporation
GULF	: Gulf Oil Corporation
IFP	: Institute Francaise des Petrole
INOC	: Iraq National Oil Company
IPC	: Iraq Petroleum Company
JGC	: Japan Gas Corporation
KOC	: Kuwait Oil Company
MOBIL	: Mobil Oil Corporation
MPC	: Mosul Petroleum Company
NIOC	: National Iranian Oil Company
OAPEC	: Organization of Arab Petroleum Exporting Countries
OPEC	: Organization of Petroleum Exporting Countries
PETROMIN	: The Petroleum and Mineral Organization
QPC	: Qatar Petroleum Company
SABIC	: Saudi Basic Industries Corporation
SAMOCO	: Syrian American Oil Company
SHELL	: Royal Dutch/Shell Group of Companies
SOCAL	: Standard Oil Company of California
SUPOR	: Societa Unione Petrolifera con il'oriente
TEXACO	: Texaco Inc.,
TPC	: Turkish Petroleum Company; known since 1923 as the Iraq Petroleum Company.

INTRODUCTION

Transnational corporations engaged in petroleum activities, historically so dominant in the development of the oil industry, have been experiencing substantial changes in some aspects of their activities since the beginning of the 1970s. Their importance was due mainly to the fact that their operations was integrated, covering all sectors of activity from exploration, drilling, production, transportation, refining and distribution. Their financial strength and their oligopolistic practices added further capability to their dominance.

Rising national consciousness and a better evaluation of their economic interests led developing countries to exert efforts to achieve control over their natural resources. The various United Nations pronouncements, which date back to the 1962 Resolution on Permanent Sovereignty over Natural Resources,^{1/} were reflections of the new trends and the new attitudes adopted by the developing countries.

The developing countries have since made considerable progress in achieving control over their natural resources. This has been specially pronounced in the oil sector, leading to the establishment of over 80 State-owned petroleum enterprises in the oil-producing countries by the end of 1977. Moreover, OPEC's role in unifying the policies of oil-producing countries has been instrumental in increasing the importance of national oil companies in oil export activities.

However, as the State-owned companies still need the technical assistance of the highly experienced international companies for the operations of crude production, refining and marketing, they have entered into long-term supply contracts with the oil majors with the view to minimizing the problems arising from these areas. They are also increasingly entering into bilateral arrangements for the supply of oil to countries in which they may sometimes have acquired equity interest in the refining segment. Furthermore, with the increase in the magnitude of their activities, the State-owned companies have called on the

^{1/} General Assembly Resolution No. 1803 (XVII) of 14 December 1962.

services of contractors and service companies for their prospection and refinery construction operations.

In spite of the changing power relationship and the practical loss of control over production, the international oil companies keep a strong hold over the industry. They carry out, in most cases, the research and development effort necessary for developing techniques and equipment, either alone or jointly with parapetroleum companies, i.e., service companies, process developers, etc. If national oil companies are to expand and integrate downstream operations with production, they must secure cooperation with international oil companies in the areas of international trading, joint-venture investment and technical services.^{1/}

The objective of this study is to examine the general features of the petroleum industry in Western Asia and to highlight the practices of transnational corporations operating within that industry, with a view to detecting such practices that may affect host country interests. The evaluation is primarily intended to provide further policy guidelines aimed at better regulating and directing the operations of the transnationals involved towards the achievement of the development goals in the region.

The study is divided into five parts. Part I aims at providing a short historical review of the oil industry and the role of OPEC in recent developments. Part II reviews the organization of the oil industry in the ECWA region, paying special attention to the characteristics and the role of the international oil companies, the national oil companies and the specialized (parapetroleum) companies. Part III identifies and describes the trends in the ownership and operation of the oil industry in the region since 1973. Part IV details regional industry activities and analyzes current management, marketing and licensing agreements, technical assistance, production sharing, joint ventures and technology transfer, with special reference to its impact on government and private company collaboration and pricing criteria. Part V scrutinizes the practices of the international

^{1/} C.C. Pocock, "The Role of International Oil Companies" OPEC Seminar on "The Present and Future Role of the National Oil Companies" Vienna, 10-12 October, 1977, p.196.

oil companies in the Region with the aim of highlighting certain practices which are not compatible with national objectives. Part VI provides a summary of findings and conclusions.

I. HISTORICAL BACKGROUND

From the earliest discovery of oil in the Middle East, transnational corporations have played a principal role in it's development. Their involvement in oil exploration, development and production can be best understood if one reviews the circumstances which brought them into prominence.

Over a long period of time, structural changes in the petroleum industry have been undergoing an evolutionary process which culminated in the General Participation Agreement signed in December 1972 between the Arab Gulf States and certain major international oil companies. In order to understand the true significance of the Participation Agreement, and the substantial impact it had on the world oil industry, it is worthwhile to review, in some detail, the more important aspects of the development of petroleum agreements since their inception at the end of the nineteenth century.

Although the evolution of petroleum agreements in OPEC member countries may be divided into several distinct stages, it is reasonable to make broad divisions, with World War II serving more or less as the dividing line between the first and second stages, followed by the participation agreements developed by year-end 1972.^{1/}

A. The First Stage

Among present members of OPEC, the first concession for the exploitation of petroleum was granted in 1890 when Bataafse, a Dutch company, secured the right to exploit petroleum on the island of Sumatra, Indonesia. In the Middle East, however, the first petroleum concession was granted in 1901 in Iran to W.K. D'Arcy, a British subject, and was the first that resulted in the discovery (1904) and production (1912) of petroleum in that country. The concession was taken over by the Anglo-Persian Oil Company (subsequently the Anglo-Iranian Oil

^{1/} Pachaci, N., "The Development of Concession Agreements and Taxation in the Middle East", Middle East Economic Survey, Volume XI, No. 22 (March 29, 1968), P.2.

Company) and was replaced by a new concession in 1933. Anglo-Iranian had its name changed to British Petroleum in 1954 in order to reflect its enlarged scope of operations.

After World War I, Iraq granted its first petroleum concession to an international petroleum consortium whose head office was in London. It was called the Turkish Petroleum Company (TPC), owned by British, Dutch and French interests. This, in fact, was the first petroleum concession granted in the Arab world.

As TPC commenced oil exploration in Iraq, the United States government, in the 1920s, urged the British and French governments to afford American companies "equality of commercial opportunity" in the Middle East. The American objective was to obtain oil exploration and production rights in Iraq, near discoveries that had been made in neighbouring Iran.

In October 1927, during the course of the negotiations aimed at introducing an American interest into TPC, oil was discovered in what was to become one of the great oil fields of the world - Kirkuk. Five American companies secured an interest in the TPC venture in an agreement concluded in 1928. TPC was renamed as Iraq Petroleum Company (IPC). Three of the American companies sold their interests, leaving Mobil and Exxon holding equal portions of the American share (23.75 percent) in IPC. The other shareholders were British Petroleum (23.75 percent), Shell (23.75 percent), Compagnie Francaise des Petroles (23.75 percent), and Gulbenkian interests (5.0 percent).

IPC's fields in northern Iraq accounted for the greater part of the country's oil exports in the years that followed. In 1932, Iraq granted a concession, covering the area west of the Tigris River and north of thirty-third parallel, to a company that subsequently sold its interest to the owners of IPC. After an extensive exploration effort, oil in commercial quantities was discovered at Ain Zalah in 1939, and later at Butmah. This operating company came to be called Mosul Petroleum Company (MPC).

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In 1933 a third company, Basrah Petroleum Company (BPC), also owned by the IPC group, was granted a concession covering the southern part of Iraq. Basrah Petroleum Company began production in 1951 from the Zubair discovery, and later developed the Rumaila field.

Following the Iraqi concessions, and until the Second World War, several other concessions were granted in the Middle East to one or more of the large western oil companies which came to be known as the "majors". These included the Aramco Concession of 1933 concluded with Saudi Arabia, the Kuwait Oil Company (KOC) Concession of 1934 concluded with Kuwait, the Bahrain Petroleum Company (BAPCO) Concession of 1934 concluded with Bahrain, the Qatar Petroleum Company (QPC) Concession of 1935 concluded with Qatar, and the Abu Dhabi Petroleum Company (ADPC) Concession of 1939 concluded with Abu Dhabi. QPC and ADPC were owned by the IPC group of companies.

The foregoing key Middle East oil concessions of the time were granted under agreements in which the granting government was a weak partner with very little bargaining power. Kuwait, Bahrain, Qatar and Abu Dhabi were still British protectorates when the petroleum agreements were concluded with their respective rulers. Furthermore, the oligopolistic, interlocking and vertically integrated structure of the major oil companies added significantly to the strength of their bargaining power. The main features of the early concession agreements, summarized below, are illustrative of the dominance which the companies of foreign powers held.

1. The area was very large and, if it did not comprise the whole territory of the state, it covered the best and largest part. For example, the D'Arcy Concession covered the whole of the Persian Empire with the exception of five provinces only - an area of 480,000 square miles. The IPC Concession of 1925 in Iraq and the two subsequent concessions of its two affiliates, MPC and BPC of 1932 and 1938, respectively, covered the whole territory of Iraq. The Aramco Concession of 1933 in Saudi Arabia, as extended in 1939, covered an area of about half a million square miles (496,000). The concessions granted to KOC, BAPCO and QPC by Kuwait, Bahrain and Qatar, respectively, covered likewise the entire territory of these countries.

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2. The duration of the concessions was rather long, ranging usually between sixty to seventy-five years. In some cases it ran to as many as ninety-two years, as in the KOC agreement in Kuwait.

3. The financial benefits accruing to the granting countries were meager. Apart from certain minor benefits under some of the concessions, the principal financial feature was the payment of royalty only, which was generally fixed at four gold shillings per ton of crude oil.

B. The Second Stage

After the Second World War, the rigidity which characterized concession grants and hence States' dealings with the oil transnationals began to change. Two important factors influenced the development of petroleum agreements: the fixing of the value of gold at \$35.00 an ounce (the free market price of gold being at the time twice this official rate) and the rapidly increasing price of crude oil as a result of a growing demand for it. The price of East Texas crude oil, for example, was fixed during the Second World War at \$1.28 per barrel and rose in 1948 to \$2.65. At that time United States crude oil prices in Texas determined the prices at which Middle Eastern crude oils would be sold.

In 1948 the Middle East producing countries were receiving the equivalent of about 22.5 cents per barrel only; this represented the royalty of four gold shillings per ton. This new situation compelled some Middle East governments, particularly Iraq and Saudi Arabia, to insist that royalty should be paid on the basis of the free market value of gold in the Middle East, rather than according to the arbitrary rate fixed by the United States and British Treasuries. Eventually a settlement was reached increasing the royalty payment to Iraq and Saudi Arabia from 22.5 cents to 34 cents per barrel.^{1/}

Even though this represented a significant gain to the producers, subsequent nationalization of the Iranian oil industry in 1951, and the introduction of the concept of the equal sharing of profits in Venezuela in 1948, greatly influenced the development of petroleum agreements in the Middle East and compelled the

^{1/} Ibid., P.2.

petroleum companies there to agree, for the first time, to the principle of equal sharing of profits. Saudi Arabia was the first country in the Middle East in which this principle was put into practice (December 1950), followed by Iraq in February 1952.

This change resulted in one major modification in the financial terms of the concessions: payments made by the concessionaires to the producing countries were associated, for the first time, with profits, in addition to the fixed amounts previously payable per unit of production (royalty), which remained the floor of the revenues received by the State irrespective of the level of profits. The implementation of the fifty-fifty division of net profits meant approximately a three to four-fold increase in revenue previously received under the royalty rate of four gold shillings per ton. Thus, for example, from 1949 to 1956 Iraq's income per barrel rose from 22.5 cents to over 80 cents.^{1/}

The introduction of the concept of profit-sharing in Saudi Arabia and Iraq had a wide impact on other concessions in the area. Concessions already in force in Kuwait, Qatar and Bahrain were revised along similar lines and the concept was adopted in other agreements subsequently signed in the area and in petroleum legislation promulgated thereafter in various other countries.

In addition, various other factors affected government revenues of the oil-producing countries. Firstly, substantial increases were received in bonus payments, rents, and ancillary benefits. Secondly, several of the new agreements incorporated a joint-venture arrangement in oil production between the operator and producing country. Such an arrangement, dating from 1957, has enabled some of the producing countries to participate in the enterprise on a partnership basis and consequently to increase the financial benefits accruing to them.

^{1/} Ibid., P.4. See also Henry Cattán, The Evolution of Oil Concessions in the Middle East and North Africa, New York, 1967, pp.9-10; and, P.J. Stevens, Joint Ventures in Middle East Oil, 1957-1975, Beirut, 1976, pp.3-4.

Government participation in oil exploitation can be considered as one of the major developments in the oil industry in the Middle East during this second stage. It has evolved from symbolic to actual participation on a partnership basis. In some countries, Government participation became, either by law or in practice, a condition of the grant of oil concession. Government participation in the oil industry in the Middle East was initiated in the Middle East countries by the introduction of:

a. A partnership arrangement (the joint-venture) manifested for the first time by the agreements concluded in 1957 by National Iranian Oil Company (NIOC) and Egypt with the Italian state-owned company Ente Nazionale Idrocarburi (ENI). These agreements allowed the entry of a foreign company, at the same time giving the maximum opportunity for the requirements of the host countries to be met, particularly with respect to control.^{1/} Of the nineteen new oil agreements signed in Iran, Saudi Arabia, Kuwait, Iraq and Egypt between 1957 and 1965, two were concession agreements and seventeen were joint-venture agreements.^{2/} However, the progression from a traditional concession regime to a joint-venture has in many cases not substantially affected the location of control or the decision-making process, so long as a transnational corporation has continued to manage the undertaking. However, joint-ventures have effectively diffused nationalist objections to foreign control of the host country's natural resources and improved communications between the government and the corporations.

b. An agency or a service type contract where the national company is the sole holder of the concession and entrusts some of its rights and obligations in the concession to a third party. The French state-owned company ERAP concluded such an agreement with NIOC in 1966 and with the Iraq National Oil Company (INOC) in 1968. The ownership of the oil and the installations, which in concession-type contracts belonged to the company, were removed from the operator in the agency-type contract. From the economic point of view the differences were more notable. In the concession-type contract the company was a contractor in the broad sense of the word, financing, producing and selling for its own account,

^{1/} Stevens, P.J., Joint Ventures in Middle East Oil, 1957-1975, Beirut, 1976, p.2.

^{2/} Supra note 4, p.8.

and only owed to the State the taxes applicable to its activities. By contrast, in the agency-type contracts the general contractor was separately a financier who loaned capital, a broker who sold a part of the production at the market price, and an operator who was paid in part at cost price for his services and in part by means of a right to purchase a portion of the oil produced at an agreed price.

Three further important developments took place during this second stage:

1. The enactment of petroleum legislation in certain OPEC member countries to regulate the petroleum industry and to set the minimum terms and conditions under which petroleum concessions are to be granted. The principal petroleum laws enacted in OPEC countries included, inter alia, the Venezuelan Law of 1943, the Libyan Law of 1955 and its Regulations, and the Iranian Law of 1957.

2. The creation of national oil companies in some member countries. These national oil companies have become the principal vehicles by which the various States entered into partnership arrangements with a number of foreign oil companies. Iran was the first major oil producer to establish its own national oil company in 1951, followed by Indonesia in 1957, Kuwait in 1960, Venezuela in 1960, Saudi Arabia in 1962, Iraq in 1964 and Libya in 1968.

3. The creation of the Organization of Petroleum Exporting Countries (OPEC) in September 1960 in Baghdad, Iraq (The five founding members of OPEC were Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. The present membership of OPEC includes, in addition to the above, Qatar, Indonesia, Libya, the United Arab Emirates, Algeria, Nigeria, Gabon and Ecuador). The principal objective is to coordinate and unify the policies of the members... "for the purpose of attempting to limit competition which would further weaken prices".^{1/} The organization came into being, partly, in direct response to lower companies' posted prices in 1959 which had the undesired effect of reducing average per barrel revenues for Kuwait, Saudi Arabia, Iraq and Iran of nearly 8 cents between 1958 and 1960.^{2/}

^{1/} OPEC, Resolution 1.2.

^{2/} Supra, Note 4, p.133.

The formation of OPEC marked a significant alteration in the balance of power between the international oil majors and the crude producers. Future relationships would develop on the basis of equality. OPEC's principal aims were set forth in Article 2 of its Statute which reads as follows:

"A. The principal aim of the organization shall be the coordination and unification of the petroleum policies of member countries and the determination of the best means of safeguarding their interests, individually and collectively.

B. The organization shall devise ways and means of ensuring the stabilization of prices in international crude oil markets, with a view to eliminating harmful and unnecessary fluctuation.

C. Due regard shall be given, at all times, to the interests of the producing nations and the necessity of securing a steady income to the producing countries; and efficient, economic and regular supply of petroleum to consuming nations; and fair return on their capital of these investing in the petroleum industry."

The coordination of producing countries' policies under a single umbrella served to gradually shift the balance of power away from the oil companies operating in their territories. Thus, oil company actions began to increasingly reflect the aspirations of producing countries. At this stage, OPEC achieved stability in posted prices and higher revenues for producer governments.

C. The Third Stage

Government participation has gradually evolved over the years, especially in the period 1967 to 1973, as an important issue to be included in petroleum agreements. The old concession agreements did not provide, in general, for the government participation in equity. Although Article 8 of the San Remo Agreement of 1920 between Great Britain and France provided that, if a private company was set up to exploit oil in Mesopotamia, then "... the native government or other native interests should be allowed, if they do desire, to participate up to a maximum of 20 percent of the share capital of the company", yet when the concession between the Iraqi Government and the Turkish Petroleum Company (the forerunner of the IPC) was negotiated and signed in 1924-25, Article 8 was not included. Instead, a clause which allowed Iraq 10 percent of any new share issue was included.^{1/} In the 1933 Saudi Arabian concession to the Standard

^{1/} Article 34, 1925 Iraq Concession Agreement.

Oil Company of California, Saudi nationals were allowed to subscribe to 20 percent of any stocks issued to the public. Despite all these clauses, by 1960 no host government had been able to secure any share of the equity of the major operating companies, usually on the grounds that these companies were not public companies and, therefore, did not issue shares to the public.

The manifestation of growing discontent within oil producers' ranks regarding exclusion from managerial prerogatives culminated in a series of United Nations resolutions on the question of "permanent sovereignty" over natural resources. Commencing in 1952, and until UN Resolution 2158 of 1966 which advised host countries to secure maximum exploitation of natural resources and to achieve this by the accelerated acquisition by developing nations of full control over production operations, management and marketing, host countries were urged "to secure and increase their share in the administration of enterprises which are fully and partly operated by foreign capital".^{1/}

Advocates of participation were concerned about the price stability of oil and felt that the 'majors' had been able to maintain the existing price structure because of their power in the market. However, this market power was being eroded by the rise of the 'independents' and the rise of the national oil companies of both the producer and consumer countries. An alliance of the "majors" and the national oil companies would strengthen the ability of the "majors" to maintain prices; at the same time it would allow the national oil companies to grow in the market through normal channels. The amalgamation of interests was envisaged as a means to provide the national oil companies with the benefit of the 'majors' experience in downstream operations, and to halt price competition among the national oil companies.

OPEC Resolutions XXIV.135 of July 1971 and XXV.139 of September 1971 called on OPEC members to "establish negotiations... (to achieve) ... effective participation". Before a general agreement was negotiated between OPEC producers and the

^{1/} United Nations Resolution 2158, Section 1, Paragraph 5.

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oil companies, Iran announced it had no interest in participation and in June 1972 Iraq nationalized IPC and did not sign the final agreement.

The procedure for conducting the participation negotiations required that a general agreement was to be negotiated between the producers as a group and the companies as a group. Once this had been established, each country was then to negotiate with its own companies to reach an implementation agreement. The general agreement was initiated on October 5, 1972 and signed by Saudi Arabia and Abu Dhabi on December 20, 1972, by Qatar on January 4, 1973, and by Kuwait on January 8, 1973.^{1/}

Since the General Agreement on Participation significantly altered the role and bargaining power of the oil companies, its key features concerning (a) ownership of shares and control (b) financial commitment (c) offtake and (d) prices are reviewed.

D. Ownership and Control

The Arab Gulf signatories to the agreement were to have an initial 25 percent share of the operating companies as from January 1, 1973. Percentage increments at the option of the host countries were to be taken on commencing January 1, 1978 and annually thereafter through January 1, 1982. The first four increments were 5 percent and the fifth increment 6 percent. Thus, the percentage level of participation would rise from 25 percent to 51 percent. The agreement provided that the State would have an interest in the crude oil concession rights, in the crude oil produced therefrom, and in the concession's crude oil production facilities, whether tangible or intangible, that is within the State's jurisdiction. Crude oil production facilities included "exploration, development, production, pipelines, storage, delivery and export facilities, as shall be defined in the applicable Implementation Agreement".^{2/} There was a mixed reaction to the agreement from elements in the Kuwait National Assembly, indicating that the agreement was unsatisfactory and requested a revision of the terms.^{3/} In December of 1973, Saudi Arabia stated that it also wanted a revision of the terms, ensuring a participation greater than 51 percent before 1982.

^{1/} See MEES, Volume XVI, No. 9, for details of the Agreement.

^{2/} Ibid., No. 9.

^{3/} Ibid., No. 34.

Kuwait announced, in January 1974, that it reached a new agreement which immediately gave Kuwait 60 percent of KOC, paid for at the net book value, estimated at \$112 million. This majority equity did not give Kuwait even de jure control since it was agreed that major policy decisions were to be decided by a joint management committee of four members. Two of the members were to be from the government, with 60 percent of the vote, while the other two were to come from Gulf and BP, with 20 percent each, but any decision required a 75 percent vote in favour.

In February 1974, Qatar followed Kuwait's lead with a similar agreement. Abu Dhabi also appeared to be following suit until in February rumors began that Saudi Arabia was to take over 100 percent of Aramco. Abu Dhabi then announced its intention to await the outcome of the Saudi negotiations. However, in September, a provisional agreement on the Kuwait line was signed and, in March 1975, the Abu Dhabi Minister of Oil announced that Abu Dhabi had no interest, at the moment, in obtaining 100 percent control since it lacked the manpower and the technology to be able to do without the companies.

Although Saudi Arabia commenced negotiations for a 100 percent take-over of Aramco in the middle of 1974, no agreement has yet been signed.

E. Financial Commitment

The Gulf States agreed to compensate the companies on the basis of net book value of production facilities and exploration and intangible development. In addition, they were committed to bear their share of the costs, associated with the production and delivery of crude oil in respect of each concession. These costs include capital requirements, including advances for working capital, based on the percentage interest of the State in the concession.

F. Offtake Arrangements

The offtake arrangements take into consideration the need for a transition period and identify two categories of crude, "bridging crude" and "phase in" crude. "Bridging crude" is crude to which the host country is entitled as part of its 25 percent share of offtake, but which the companies need to fulfil their existing market commitments. In the first year, up to 75 percent of the host

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country's 25 percent share of offtake is to be sold to the companies as "bridging crude", if the companies require it. In the second year, up to half of the government's share is to go to the companies as "bridging crude" and in the third year 25 percent. By the fourth year, it is assumed that the companies should be able to meet their market commitments from their own share of offtake.

"Phase in" crude is crude to which the host country is entitled from its share of offtake, but which the host country may have difficulty in disposing of until their marketing network has developed. This "phase in" crude was to be bought by the companies. Up to 15 percent of the government's entitlements in the first year could be sold to the companies as "phase in" crude, 30 percent in the second year, 50 percent in the third year and 70 percent in the fourth year. After the fourth year, the percentage of the "phase in" crude was to be reduced, reaching only 10 percent of government entitlement by the tenth year. The governments were obliged to give the companies four years' advance notice of the amounts of "phase in" crude which they wished the companies to take.

In addition to the arrangements for the transition period, the agreement also outlines the mechanism for the disposal of non-transition offtake, i.e., crude oil other than "bridging" or "phase in" crude. Each party has a 'basic right' to a share of the offtake. This share is determined by the respective levels of participation of both parties, thus if all participation options are taken up, by January 1, 1982, the host country's 'basic right' would be 51 percent of offtake.

Each year, both parties make known the offtake requirements for three years ahead. Planned capacity is then set at a level, if possible, to meet these total tabled requirements. If total tabled requirements exceed capacity, then the production level is set at the maximum technically possible, and the tabled requirements of each party are reduced. Cuts are imposed initially on the party which has tabled a requirement above its basic right. If either party which has tabled wants to expand future capacity, and the other party does not, this is provided for by a system of 'forward avails', which means that capacity is

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expanded to meet the requirements, and the party wishing the extra oil takes it, paying a special 'forward avails' price.

G. Price Levels

There were four prices to be determined, each price related to the type of crude lifted, i.e. Bridging, Phase in, forward avails and Overlift. Each of these prices was to be the subject of separate negotiations as part of the negotiations of the implementing agreements. However, it appears that the intentions of the negotiators were that bridging crude was to be priced at approximately realized market levels. Details for the calculation of the forward avails and overlift prices were spelled out in the general agreement.^{1/}

The Gulf States' General Agreement had definitely changed the face and structure of the petroleum industry, even though it did not match the gains achieved by sister OPEC member Libya. The October 1973 war between the Arabs and the Israelis generated a strong demand for nationalization, especially for American and Dutch interests because of these two countries' support for Israel. In October 1973, Iraq began nationalizing portions of Basrah Petroleum Company (BPC). Percentages corresponding to the interests of Exxon and Mobil Oil Corporations, the Dutch 60 percent of Shell's interest, and the 5 percent share held by Gulbenkian's Participation and Exploration Company, were successively taken. In December 1975, Iraq reported that it had nationalized the British and French interests in BPC.

The combined phenomena of nationalization and participation had substantial consequences for the oil companies operating in the producing countries. For the first time, these countries controlled some of the supplies of the oil being produced and thus became potential sellers of considerable quantities of crude oil. This circumstance brought new importance to the role played by the oil companies.

^{1/} MEES, Volume XVI, No. 9.

To the extent that oil companies had less oil than required to meet market demand, they became dependent upon the consolidated policies of the producers. Producers' policies concerning prorationing of production among themselves gained greater significance in bringing in line differences in the supply as well as the market price of oil. On a collective basis, the producers could succeed in raising the price of oil (and thus aggregate revenues), through a combination of limiting supply and bringing into full play the market forces.

Several trends became evident as producers gained increased control of oil supplies. The trend of government-to-government agreements involving barter deals threatened the future role of the oil companies. The rise of consuming countries' national oil companies posed a further threat, especially if consuming countries' barter oil was made available to them directly instead of going through the traditional "majors". Admittedly, the concept and practices of participation suggest a considerable diminution of the role of the oil companies, but because the producing countries lack sufficient manpower, technology and markets, the companies, with their access to these elements, will be needed to fill these gaps. It is in that context that joint-ventures announced between producers and the companies are to be viewed. At least since the early sixties, oil companies' decisions to seek sources of crude and the way in which the companies acquire this crude have been determined by the wishes of the producing countries.

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II. ORGANIZATION OF THE OIL INDUSTRY IN THE ECWA REGION

A. The International Oil Companies

The world oil markets have been dominated until recently by the present international companies. These were the ones which had accepted the financial risk of exploration from the beginning, provided for most of the large investment required, and promoted the development of the necessary technology.

These constraints have given birth to the principal characteristics of the international oil companies: they are integrated so as to reduce the risk involved in exploration; they have a very substantial financial capacity; and, they must carry out a continuous research and development effort with the object of developing the new technologies that become necessary at all levels of the industry.^{1/}

The international oil companies carry out all phases of operations, beginning with prospecting for crude oil and ending with the distribution of petroleum products. The uncertain part, which is essentially the search for new deposits, is merely a fraction of their activities and this allows them to distribute financial risk over the whole of their industrial operations.

1. Integration

The international companies found, right from the beginning, that it was necessary to integrate by controlling production, transportation, refining and distribution. However, recent political and economic developments in the producing countries have considerably modified their positions in the crude production sector. The producing countries have generally nationalized the assets or have obtained majority control of the foreign companies operating on

^{1/} M. Hiegel, "Ownership of Petroleum Technologies" (ESA/NEET/AC.11/BP/3).
(Background paper presented at the United Nations Interregional Symposium of State Petroleum Enterprises in Developing Countries, Vienna, 7-15 March 1978).

their territories and have turned them over to national companies created for the purpose of managing the government's interests. However, the international companies usually continue to provide technical assistance in the field and, in return, among other things, are granted long-term contracts for purchase of crude. Thus, the production function is no longer controlled by the international companies, at least from a legal point of view.

The nine principal companies still provide 60 percent of world oil production, either directly, as in the United States, or by repurchase, as in the OPEC countries. They also process nearly 50 percent of the crude and distribute more than 55 percent of petroleum produced. The American companies are predominant because 10 out of 15 leading world companies in each of the three main sectors: crude oil supplies, crude oil processing and petroleum products sales are of American origin. The Exxon group leads in all activities, followed by the European Royal Dutch Shell group. This has been the case since the beginning of the oil industry.^{1/}

Integration also offers the international companies the advantage of leverage and an appreciable maneuvering position in each of the activities of the oil industry. Thus, they are not directly vulnerable to economic forces from the outside which could otherwise endanger all of their activities, and the whole industry is able to function smoothly. This integration enables the international companies to guarantee supplies of crude oil and also the means of transport from the producing countries to the consuming countries, including refining and final distribution.

The companies are able to spread their risks geographically and politically by carrying out exploration for new deposits in a large number of countries under their various subsidiaries throughout the entire world. They derive their supplies worldwide, which in fact provides them with a large diversity of sources of crude oil and thus considerable flexibility in distributing these crudes between the different consuming countries in accordance with the special structures of final demands.

^{1/} Ibid., p.11. See Table II-1 in the Annex.

Finally, they provide a large variety of petroleum products to the markets they serve; not only fuel and fuel oils, but a considerable number of specific products in more or less large amounts, together with the basic petrochemical products.^{1/}

The manufacture of petrochemical products has become a source of considerable income for most of the international oil companies. Since petroleum and gas are the essential raw materials for the petrochemical industry, the international oil companies have diversified in this direction; this allows them to reach markets with high potential such as those for plastic products, elastomers, textiles and pharmaceutical products and fertilizers. Furthermore, nuclear energy, minerals, submarine modules, phosphates, coal and its gaseous transformation products and the new energy applications of solar and geothermal technology are all fields of interest and possible diversification for the international oil companies. Finally, it should be emphasized that a co-operative attitude comes naturally to the international oil companies, because, while competition is certainly a factor conducive to efficiency in refining and distribution, it may be dangerous if it causes improper exploitation of natural non-renewable resources and may lead to waste in this area.

2. Financial Capacity

According to the Chase Manhattan Bank,^{2/} the gross investments in fixed assets in the world oil industry (excluding the centrally planned economies) at December 31, 1976 represented \$377 billion. Roughly 40 percent of these investments are placed in the United States. Net investments at the end of the same period amounted to \$237 billion, almost 35 percent of the total being in the United States. Comparative figures for gross and net investment in fixed assets for the Middle East were \$18 and \$11 billion dollars, respectively, each representing only 5 percent of the total.^{3/}

^{1/} M.G. de Chazeau and Alfred E. Kahn, Integration and Competition in the Petroleum Industry.

^{2/} Chase Manhattan Bank, Capital Investments of the World Petroleum Industry, 1976, pp.11-12. (See table II-2 in Annex)

^{3/} See Table II-2 in the Annex

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Capital and exploration expenditures in 1976 was \$59 billion, with 40 percent in the United States, 16 percent in Western Europe and 8 percent in the Middle East. World capital and exploration expenditures jumped from \$16 to \$26 billion in the period 1966 to 1972; in the period 1973 to 1976, it was even more spectacular, rising from \$32 billion in 1973 to \$57 billion in 1976 - an increase of \$27 billion. United States expenditures in the period 1973 to 1976 increased \$12 billion to \$23 billion, nearly 44 percent of the world total increase. During this same period Middle East expenditures increases were slightly over \$ 3 billion and Western Europe over \$4billion. Smaller increases occurred in the other geographic areas. This analysis indicates that capital and exploration expenditures are being concentrated in the United States, Western Europe and the Middle East, in that order.^{1/}

Oil companies carry out most of these expenditures and, because of the magnitude of the required investments, these companies must be able to develop sizable financial resources. This is indeed the case and oil companies represent some of the biggest companies in the world. Fifteen oil companies come out in the top fifty industrial companies. Ten of these fifteen companies are of American nationality. Five of the first ten companies are American oil companies (Exxon, Texaco, Mobil, Standard Oil of California and Gulf Oil).^{2/}

The huge requirements for capital to finance the activities of the industry are partly generated internally from operations, and partly by borrowing and the selling of stock. Chase Manhattan Bank^{3/} pointed out that a Group of oil companies^{4/} had at its disposal in 1976, \$40 billion to apply toward new capital

^{1/} See Table II-3 in the Annex.

^{2/} See Table II-4 in the Annex

^{3/} Chase Manhattan Bank, Financial Analysis of a Group of Petroleum Companies, 1976, pp.11-12. See table II- in the Annex.

^{4/} The Group is comprised of 29 petroleum companies (including the seven largest) whose combined operations constitute a major proportion of the worldwide activities of the petroleum industry. Their combined financial performance provides a valuable basis for determining the probable experience of the over-all industry.

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investments, payment of debt and dividend distribution. Sixty-seven percent of available funds were internally generated, 28 percent from capital recovery provisions, such as depreciation and depletion, and 6 percent from non-cash charges. Nearly 25 percent of the funds came through the issuance of long-term debt, a small portion (less than 2 percent) from the sale of stock, and almost 7 percent from other business transactions, including the sale of assets.

The Group applied the available funds to capital expenditures (68 percent), dividend payments (13 percent), debt repayment, investments, advances to associated companies, retirement of common and preferred stock (15 percent) and, additions to working capital (4 percent).

The Group's 1976 balance sheet indicated that 26.1 percent of the total capital employed was debt and represented a rising trend from 21.6 percent in 1973. In 1965, this key ratio, a measure of the self-financing capacity, was only 13.3 percent and rose steadily until 1972. The ratio for 1973 and 1974 declined below that of 1972, but continued to rise for 1975 and 1976.

The decline of 1973 and 1974 probably represents good profit performance for those years, as a result of prevailing industry conditions, but the resumption of the rise represents the experience of increase in investment costs and a related reduction in company profits compared with 1974.

3. Rates of Return

It is a complex task to evaluate the rate of return for an international oil company, operating across national boundaries, in various countries, with complex taxation policies and different investment incentives criteria. There are even diverse accounting treatments for transactions considered fairly standard. Return on average invested capital, since 1973, has shown mixed performance. The year 1974 recorded historic highs in the trend (19.2 percent worldwide, 14.6 percent in the United States and 23.9 percent in the rest of the world). The year 1975 registered a near equalization of returns for all areas, while 1976 indicated an average worldwide rate of 13.8 percent, with the United States having the highest return and the rest of the world lower at 12.3 percent.^{1/}

^{1/} Supra note 8, p.22. See Table II-5 in the Annex.

To the extent that these figures are valid for the industry as a whole, the latest figures reveal a possible lower rate of return for company operations in the major oil producing countries.

4. Technological Research and Development

Technological research and development is a vital component of the need to develop and maintain state-of-the-art knowledge with respect to the multitude of scientific and engineering disciplines required in the exploitation of petroleum. The principal actors in the world petroleum industry have made significant contributions to pioneering research to facilitate the extraction of petroleum. More sophisticated techniques are continually being introduced to discover and develop new reserves to replace reserves diminished by rising consumption. Thus, inevitably, the search for petroleum must occur in harsher climates-on-shore and off shore - and at increasingly greater depths. It is necessary, therefore, for producing countries to develop a capability for carrying out successfully the functions necessary for them to maintain or acquire sovereignty over their natural resources.

Only since 1970 have producing countries had the full authority to assume an independent path in the development of petroleum resources. To this effect, efforts must be directed to the training of scientists, engineers and technicians. Various countries have set up a number of petroleum institutes and have built-up the insitutional framework to make them viable as individual host country entities and through collaboration with other countries. ^{1/}

These institutes would become involved in the principal areas of research being carried at the present, having general applicability to their own regions and countries.

^{1/} See M. Jean Claude Balaceanu and M. Jean Favre, "The Prospects for Transfer of Technology to, and the Establishment of Advanced Research Centres in OPEC Member Countries" in OPEC Seminar on the Present and Future Role of the National Oil Companies, Vienna, 10-12 October 1977, p. 109, see Table II-6 in the Annex.

Some of the areas are the following:

- the development of equipment and methods for drilling and producing hydrocarbons from deep or inhospitable offshore fields and, in particular, research on drilling supports, subsea production installations, floating installations for processing storage and evacuation, and subsea pipelaying techniques;
- the improvement of methods of enhanced recovery;
- the improvement of refining processes with the objective of especially reducing air pollution, developing better catalysts, fuels and lubricating oils, promoting energy conservation in refineries and petrochemical units by recovering low-grade waste heat.;
- encouraging energy conservation at the consumption stage, by insulating lines and by reducing fuel consumption in cars.;
- research on special techniques for high temperature desert areas.

In developing the technical know-how infrastructure, many countries have set up effective, high quality research institutes. One such country is France, where IFP (Institut Francais de Petrole) provides the French petroleum industry with extensive technological competence and know-how. In addition to pioneering work in process technology, it also trains personnel in all levels of developing basic knowledge and practical know-how concerning petroleum industrial operations.

The international oil companies very often carry out the research and development efforts necessary for developing the techniques and equipment used in the oil industry. They keep a close check on the know-how of practically all operations in activity sectors considered traditional; drilling, field production, refining, distribution, future oriented technologies of offshore production systems, enhanced recovery, and transport. Their control is decisive because of their know-how of operations and their ability to coordinate activities in an industry where substantial decentralization of tasks occur in the building of all petroleum infrastructures.^{1/}

^{1/} See Table II-7 in the Annex.

B. The National Oil Companies (NOC's)

1. Emergence and Prospects

The decline of power of transnational oil corporations has been accompanied by a concomitant rise in the influence of national oil companies of the major producers. The growing importance of petroleum in world trade increased producers' reliance on this commodity as a primary income generator. The formation and development of the national oil companies is a direct result of the trend of expansion of the public sector in petroleum. Major ECWA producers and others achieved legitimacy from the United Nations Resolutions on Permanent Sovereignty Over Natural Resources which was passed almost unanimously by the General Assembly on 25 November 1966.^{1/} It was a resolution with a clear and ample recognition to the new trend of thought in the world community.

This trend in expansion observed in the public sector precipitated global movement as the number of newly independent countries in Africa, Asia, the Caribbean and the Pacific increased and as OPEC and other producing countries took legal control of their industry. Political trends in the world community and the growing power of OPEC were contributory to these developments. However, there are identifiable common factors responsible for the development of NOCs in particular countries, irrespective of the special circumstances surrounding the oil industry in each country.

These common elements can be attributed to economic nationalism which showed early signs in the petroleum industry in Mexico and soon caught on in many other countries. Retrospectively, the Middle East Economic Survey summed up the trend in an article in 1968:

"The emergence of the State Oil Companies in the developing world has proceeded parallel to the growth of self awareness, of which it is in part the expression. It is based on the widespread feeling that the control of vital natural resources, on which the nation is in some cases almost entirely dependent, is not a matter which can safely be left in

^{1/} General Assembly, 21st Session 1966, Resolution No. 2158(XXI) of 25 November 1966.

the hands of foreign companies whose interests do not necessarily coincide with those of the host country and which at times may be inimical to them".^{1/}

Various developments outside the host countries led to the proliferation of oil companies and easier access to technologies were used by the NOCs to obtain better terms from both the traditional companies and newcomers. Developing producer countries' NOCs generally chose domestic marketing as the focal point for entry into the operational aspects of the oil business mainly on the basis that this segment represented the least number of barriers to entry.

The increase of ownership and operations of tankers by large producing and consuming developing countries provided another avenue to gain more independence from the major oil companies. The OAPEC tanker fleet in which ECWA producers participate, plus those of some OPEC members (some OAPEC members are OPEC members) such as Indonesia, Iran, Venezuela and some other developing countries, although representing only a tiny percentage of the world tanker fleet, should register impressive growth in the years ahead as NOCs take on more effective control in a broad range of industry activities.

On the other hand, certain other factors constrained the spread of NOCs, if not their efficient operations. In the early stages, producing countries' NOCs could not exploit crude oil production because of the lack of finance, technology and trained personnel. As a consequence, the NOCs' main interest were directed towards maximizing host government returns as a tax collector. Large expenditures required for exploration and the associated high risks of nondiscovery of hydrocarbons forced the NOCs to protect their acquired capital for requirements of the governmental machinery and, therefore, exploration activities were largely handled by the foreign oil companies. As the financial conditions of producer governments improved, information units to keep governments continuously informed in the operations of the oil companies were established. Inevitably, a divergence of views between the producers and the oil companies over host country national development goals developed. These differences in views were utilized by the NOCs to seek changes in the structure and activities of the NOCs which were directed to increase overall coordination of industry activities and staff training programmes.

^{1/} Middle East Economic Survey, "The Risk and Development of National Oil Companies" Supplement: May 31, 1968.

The inherent nature of an oligopolistic industry such as petroleum, with characteristics of vertical integration, economies of scale, and large capital requirements with associated high risk factor in upstream operations, caused the NOCs to formulate and adopt a common strategy towards gaining the necessary experience with which to operate the industry. For example, Petromin of Saudi Arabia, which came into being in 1962, took over domestic marketing in 1967. They then entered the refining segment of the business by acquiring at first a 75 percent interest in a new refinery in Jeddah (1968) before building a wholly-owned refinery in Riyadh in 1975.

Because of the lack of indigenous technological expertise, the NOCs left the activities related to exploration for hydrocarbons, the development and conservation of discovered reserves and production itself as the last areas for entry. As decisions were made to function in these areas, a strategy of co-operation with the foreign oil companies was employed by the NOCs of producing countries.^{1/}

In spite of barriers to entry, there has been a rise in public sector participation in important functions of the petroleum industry as illustrated in table 1 below:

^{1/} The Evolution of OPEC Strategy, Lexington Books, D.C. Heath and Co., Lexington, Mass., USA, 1977.

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Table 1. Share of Ownership
(Outside North America and Centrally Planned Economies)

	<u>1963</u>	<u>1968</u>	<u>1972</u>	<u>1975</u>
<u>Production</u>				
Majors ^{a/}	82	78	74	30
Government	9	9	12	62
Others	9	13	15	8
<u>Refining</u>				
Majors ^{a/}	65	56	54	47
Government	14	16	17	24
Others	21	23	27	29
<u>Marketing</u>				
Majors ^{a/}	62	56	54	35
Government	11	14	15	21
Others	27	31	31	34

Source: Geoffrey Chandler, "The Innocence of Oil Companies",
in Foreign Policy, Summer 1977.

a/ Majors: BP, Exxon, Gulf, Mobil, Shell, Standard Oil of
California, Texaco.

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Table 1 shows that the ratio between the private and the public sector in production (upstream) operations has been completely reversed in a relatively short period between 1972 and 1975. In the production sector, "majors" and others represented 89 percent, compared to roughly 12 percent for government, but by 1975 "majors" and others were only 38 percent, compared to 62 percent for government. As can be observed, less spectacular changes are revealed for the refining and marketing sectors.

It is appropriate to question whether these trends to greater public presence in the world petroleum industry will continue. Much of the answer will necessarily depend on speculation, as the ultimate representations in the various industry segments will depend on policy decisions by both the public and private sectors. For example, a number of transnationals have sold their refining and marketing outlets to the public sector in certain countries, perhaps in their attempt to balance their operations in the new oil equilibrium. It is noteworthy though that significant production could be harnessed in countries which are not now considered as major producers and that the current major producers will have to decide as to how best to secure outlets for their production on a permanent basis. "Permanent sovereignty over natural resources by developing countries" is not enough. The great challenge presented to the national oil companies is that of market accessibility.

2. The Present and Future Role of State Petroleum Enterprises within ECWA

The continuing rise in global economic dominance in energy and chemicals is shifting decisively and permanently to national governments. While this is not confined to the ECWA countries, there is probably greater momentum in this region. In addition to this increasing responsibility to develop production functions in the producer countries and to negotiate reliable and economical supplies in the user countries, they have become more involved in leading the development of regional industrial conglomerates, especially in producer countries.

Under present conditions, the state companies in producer countries are generally dominant in production activities and frequently have an absolute monopoly over all oil operations. The latter is the case of most of the ECWA

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countries, which have set up integrated national companies with the main objective to acquire an understanding of operations throughout the whole oil industry.

The monopolies have been brought into existence via nationalization, as in the case of Iraq (nationalization of I.P.C.) or de facto takeover through the purchase of assets. This ranges from 100 percent takeover of the original concessionaire companies in States such as Kuwait and Qatar to sharing arrangements under which the oil companies have been allowed to keep minority equity interests in countries such as Abu Dhabi.

The objective of state companies is to develop integration subsequent to the production stage. Current efforts are primarily directed towards increasing refining capacities, presently amounting to 10 percent of the oil produced, so that more finished petroleum products can be exported and tanker fleets developed.

The observed trend indicates that very few ECWA countries refine any substantial quantities of crude oil to meet demands in excess of domestic and regional requirements. The question of the expansion of indigenous refining capacity to generate product supplies for export is a topic receiving careful scrutiny within the context of the Euro-Arab dialogue which is attempting to delineate the parameters for cooperation with regard to Arab producers' aspirations for above average industrial growth.

In the major producing countries with high industrial potential, state companies, in addition to their role as producers and exporters, contribute to industrial development of their countries through participation in activities of refining, transport and distribution.

The future of NOCs in the ECWA countries is viewed under two broad considerations: planning and education strategies aimed at the control of the technical management of petroleum operations. In conjunction with this prime objective is the stated goal of NOCs' role in integrating economic development and diversification of the sources of national income. This is particularly true in the case of Saudi Arabia. Obviously, the degree of independence of the NOCs will be measured in the forthcoming years by the following indicators:

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- the number of exploration crews, drill rigs and national construction companies in which the state companies act as operators;
- the quantities of oil refined on the spot and transported by the national fleets;
- the percentage of domestic manpower employed in all these activities;
- their cost competitiveness with the multinational companies in all the industrial sectors in which they compete; and,
- conservation of depletable oil and gas resources, as well as the development of alternative sources of energy and international cooperation with special emphasis on assistance to and protection of ECWA countries' interests in the field of energy.

These factors will be the main motivating forces which will determine the future role of ECWA's state petroleum enterprises in world petroleum and energy industries. An essential observation is that it is generally recognized that the role of ECWA enterprises stated above are complementary to those of transnationals, and that cooperation in many areas between state petroleum enterprises and transnationals will be inevitable in order that greater benefits can accrue to all concerned.

With respect to NOCs' participation in economic and social development, present trends indicate that their thrust will be directed towards investing and/or redistributing monetary resources obtained from their primary operation. Since in the longer term the achievement of this specific goal requires the acquiring of true technological independence, there will be continuing and accelerated emphasis in the following areas:

a. Technological research

A basic problem of the national oil companies is lack of technological know-how and the need for its import. Service imports of OPEC member countries (of which Saudi Arabia, Kuwait, Iraq and UAE are members) have jumped from \$8.8 billion in 1974 to \$17.4 billion in 1976 and, according to estimates given by Chase Manhattan Bank, this figure is expected to soar to US\$ 33.1 billion by 1980.

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At present, a number of ECWA member countries such as Saudi Arabia, Iraq, Kuwait and Egypt have institutes of petroleum under their national oil companies or relevant ministries.^{1/} In practice, no close cooperation exists between these institutes. Current suggestions are urging that steps be taken to bring about closer cooperation between these institutes.

b. Exchange of information

It is generally known that most multinational oil companies, due to the span of their activities, specially in downstream operations, as well as their withholding full information on such activities, are in possession of more detailed information and knowledge as compared to state petroleum enterprises. In the past, lack of knowledge of various facets of oil industry has, in a few cases, resulted in wrong resolutions by state petroleum enterprises. As the future continues to unfold, and as attempts to achieve a high level of integration are made, such knowledge becomes more crucial.

c. Manpower: the training of experts and other personnel

Attempts to deal with manpower problems now and in the future present formidable obstacles to ECWA's producing countries in particular. In the first place, it involves the countries' whole educational systems. It must also be recognized that, even where some progress is made, experience and expertise in areas such as exploration and development or in new areas like petrochemicals do not come easily.

The second and wider problem relates to the overall economic development plans of member countries. The special status of the oil industry, in some ways, inhibits general economic progress by the intensive use of limited managerial and manpower resources. Present manpower planning must be such that the future demands of the economy as a whole can be met.

^{1/} Balaceanu and Favre, op.cit.

3. Cooperation among ECWA National Oil Companies

Cooperation among national oil companies of ECWA take place through the medium of common membership in intergovernmental organizations such as OPEC and OAPEC. At an OPEC members' national oil companies meeting in London in August 1974, the basic aims of cooperation were agreed upon as follows:

- a. To exchange information relating to price trends and rates of production.
- b. To exchange relevant information on new deals concluded during the preceding period.
- c. To coordinate marketing systems and contracting conditions of members' national oil companies.

No immediate practical action was taken to implement the above-mentioned aims. At a subsequent ministerial conference of OPEC held in June 1975 in Gabon, the following resolution was adopted:

"To take the necessary measures for the promotion of cooperation among the national oil companies of OPEC member countries, particularly in the field of marketing, and in this context, decided to create such organs and institutions within the framework of OPEC".

One of the OPEC efforts to affect national oil companies' cooperation, following the OPEC conference in Gabon, has been the organization of a seminar on "The Present and Future Role of the National Oil Companies" which was held in October 1977 in Vienna. The conference discussed regional cooperation in downstream investments as one important area where OPEC and OAPEC can provide the institutional framework for facilitating planning and coordination among member countries.^{1/}

^{1/} OPEC Seminar, "The Present and Future Role of the National Oil Companies", Vienna, October 1977. See Table II-8 in the Annex for the subscribed capital distribution of joint projects among OAPEC member countries.

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OPEC's awareness of the need for cooperation and common action on a bilateral, regional and multilateral bases did not lead to early implementation of their identified priorities for downstream and other investments in the oil industry. OAPEC was established in 1968 with a view to providing the medium and long-term development needs of oil industry in member countries.

Kuwait, Libya and Saudi Arabia were instrumental in establishing OAPEC and later seven other Arab countries - Algeria, United Arab Emirates, Qatar, Bahrain, Iraq, Syria and Egypt - joined the Organization. Membership is open to any Arab country in which petroleum constitutes a significant source of income. Article 2 of the OAPEC agreement states that:

"The principal objective of the Organization is the cooperation of the members in various forms of economic activity in the petroleum industry; the realization of the closest ties among them in this field; the determination of ways and means of safeguarding the legitimate interests of its members in this industry, individually and collectively; the unification of efforts to ensure the flow of petroleum to its consumption markets on equitable and reasonable terms; and the creation of a suitable climate for the capital and expertise invested in the petroleum industry in the member countries".

Although OAPEC is a commodity organization, its avowed purpose is to promote economic integration between the oil sectors of its member countries, mainly through joint projects and the coordination of their economic petroleum policies. OAPEC downstream investments were designed not only to counteract the power of the international oil companies, but also to provide needed infrastructure in member countries. Some regional projects of OAPEC are mentioned below:

- a. The Arab Maritime Petroleum Transport Company (AMPTC), established in 1972 to combine the resources of OAPEC members in a joint tanker company. Now owned by nine of the organization's members, AMPTC represents partial fulfilment of the Arab States' aspiration to carry as much as possible of their

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oil and gas in their own vessels. AMPTC has eight tankers totalling more than 2 million tons and this year is taking delivery of two LFG carriers with a capacity of 75,000 cu.m. each.^{1/}

b. The Arab Shipbuilding and Repair Yard Company (ASRY), a petroleum transportation company in the dry dock business, was established at the end of 1974 in Bahrain. In connexion with the dry dock business, a technical school for training in various skills required for ship repair and maintenance services was established. ASRY's authorized capital is \$340 million and the dock, which can accomodate tankers of up to 500,000 tons, was the first to open in the Gulf. The seven shareholder governments of the company are: Saudi Arabia, Kuwait, Iraq, the U.A.E., Bahrain, Qatar and Algeria.^{2/}

c. The Arab Petroleum Investment Corporation (APIC) was set up in 1975 and is based at Dammam in Saudi Arabia. It has a paid up capital of SR 1.2 billion and aims at investing Arab money in petroleum projects and related activities. Its main activity has been to participate in loans and bond issues for projects. These projects include a fertilizer scheme in Jordan and a Liquid Natural Gas project in Bahrain. APIC is also planning several projects as part of a consolidated Arab oil industry. These include the creation of a drilling company with a foreign partner (talks are being held with Santa Fe and three rigs are being built); a detergent project; a catalysts project; and a lube oil project.^{3/}

d. The Arab Petroleum Services Company, set up in Tripoli 1977, so far has been slow to get underway. It is involved in the drilling project with APIC and is planning companies in such fields as seismography.^{4/}

Further regional cooperation is highly dependent upon the ability of OAPEC members to deal with the international oil companies as they attempt to enter

^{1/} James Buxton, "OAPEC Creates the Industrial Base", in Financial Times of March 26, 1979.

^{2/} Ibid.

^{3/} Ibid.

^{4/} Ibid., for the subscribed capital distribution of joint projects among OAPEC member countries, see Table II-8.

downstream investments. Although oil exporting countries have control of their crude oil supply and the means to finance their own downstream activities, much downstream expansion plans to be implemented will revolve around the market potential for oil products in some developing countries based on long-term arrangements designed to increase the volume of trade between oil exporting and oil importing developing countries.

C. The Specialized (Parapetroleum) Companies

Because the oil industry is so complex, contributions from numerous sources are required to affect the total operation. Consequently, there exist many agents pursuing different objectives. By reason of their historic domination of the whole industry, the international oil companies are predominant in these activities. In recent years, oil producing countries, through their national companies, have joined the ranks of the international companies in providing specialized services.

Specialized parapetroleum service companies seem to be more crucial to the running of state companies in the producing countries than in the operation of the internationals. The state companies have generally not succeeded in acquiring true technological independence and must call on the services of major international contractors who hire out their services in return for direct or indirect remuneration, such as preferential agreements for purchases of crude or discounts on the market price. This kind of activity has tended to develop in recent years, especially in the OPEC countries.

In the case of the consumer countries, governments have sought to control the oil industry more closely by opening up new legal channels for intervention. Some governments have acquired financial interests or have set up companies in order that they can intervene directly in the market.

The specialized (parapetroleum) companies discussed here are not unique to ECWA countries. They are active internationally, working practically in every geographical zone, working on behalf of the integrated groups as well as that of the state companies in the producing countries. It seems reasonable to infer

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that if national oil companies are to achieve the level of effective control they desire, they should contribute to the world technological research effort in order that they themselves may possess the know-how necessary for their independence vis-a-vis the international oil companies.

National oil companies should strive to achieve a high level of participation in the areas of contracting, engineering and construction.

1. Contractors

These are companies that specialize in a clearly defined industrial field which hire out their services to the oil companies. Because the operations - geology, geophysics, drilling, and consulting companies - are so diversified and technical, this type of organization is met within several sectors of the oil industry. Whatever the level or category of technology required in the exploration of resources, the construction companies contribute the basis that permits the industry to carry out its activities.

2. Engineering Companies

The role of engineering companies in oil operations is crucial. Increased productive investments, promotion of innovative techniques, the transfer of know-how and knowledge, the application of improved exploitation techniques and equipment, improvement of more efficient human resources and working conditions represent the fundamental contributions of engineering. The conduct of these contributions can be carried out in two different ways, depending on whether engineering functions are provided by individual autonomous consultancy firms or through the planning and design departments within companies.

Because integrated engineering companies are well placed to carry out a variety of functions, they frequently become the decision centre at all stages of work on projects. The ability to incorporate them into the total production, planning and profitability arena of the industry appears to be an essential but difficult criterion that national oil companies must meet. ECWA producing countries in particular show no clear pattern as to how the role of subcontractors should be viewed. One should note that the very powerful engineering companies that dominate the business often act as general equipment suppliers for the provision of complete units of industrial equipment and are active in areas other

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than oil activities.

The international, as well as the state-owned companies, use their expertise for the design and provision of the installation they need, just as they use the services of contractors for other tasks. Greater dependence on this category of parapetroleum company is obviously present in countries where technology is not readily available.

3. Constructors

The construction companies constitute the basis that permits the oil industry to carry out its activities. The constructors that are directly related to the industry may be classified as engineering constructor companies building yards, shipyards, and suppliers of equipment.

From elementary steel products, the equipment suppliers and construction companies produce the specialized equipment necessary: drill rigs, platforms, production facilities, pipelines, tankers, refineries, etc.

Depending on the sector in question, this equipment may belong to the contracting companies, ship owners, service companies, or the international or state oil companies. In all cases, they provide an essential contribution to petroleum activities.

It is important to note that the oil companies, international as well as national, have come to rely extensively on the large number of independent firms, contractors, and engineering and construction companies which provide them with services on the fringe of the oil business. Furthermore, these companies have generally succeeded in establishing themselves in particular activity sectors. Probably the decision to be made is not how national oil companies can integrate their activities into the parapetroleum sectors, but how best can they encourage or support the development of these companies within their economies.

The parapetroleum sector has a very important function to contribute and is helping to provide substantial efforts in the field of technological research. The pay-off to the oil industry as a whole is the considerable capital of competence and know-how.

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III. TRENDS IN OWNERSHIP AND OPERATION OF THE INDUSTRY SINCE 1973

Until the end of 1972, traditional oil concessions represented the terms under which the oil production of the Middle East and North Africa took place. Under the original terms of their concessions, the companies^{1/} had ownership at the wellhead, among other things, of all oil produced. From 1957 the concession concept began to be replaced by new arrangements giving the state a degree of direct participation.^{2/} The introduction of American independent oil companies and European national oil companies promoted a competitive element in the search for oil. New acreage were let by Saudi Arabia, Kuwait, Egypt and others originally as a concession with the proviso that the state has the right to negotiate a shareholding once oil is discovered.^{3/} Iraq employed the services contract^{4/} involving ERAP, to bring the Buzurgan, Abu Ghrab and Tuka fields on stream. Production sharing arrangements have been utilized by Egypt, the Syrian Arab Republic and Lebanon whereby a foreign company is compensated for its share of expenditure in cash or kind, or by favourable tax terms while production is generally divided in a ratio of between 75-25 and 85-15 in favour of the state.^{5/}

The foregoing examples demonstrate to a degree the evolutionary path oil production, involving oil companies and host country governments, had followed over a long period. The entire Middle East progression is well put by Shavarsh Toriguian^{6/} as follows:

- 1/ In approximate order of size these seven companies were: Exxon (formerly Standard Oil of New Jersey until 1972, marketing (worldwide) under the name ESSO (except in the U.S. as Exxon); the Royal Dutch-Shell group, Texaco, Standard Oil of California (known as social and marketing as Chevron), Mobil, Gulf and British Petroleum. In the early days Compagnie Francaise des Petroles (CFP and marketing as Total) although considerably smaller than the big 'Seven Sisters' and often regarded as an eighth sister because of the worldwide spread of its operations.
- 2/ The Middle East and North Africa, General Survey, 1977-78
- 3/ Ibid., p.80.
- 4/ Ibid., p.80.
- 5/ Ibid., p.80.
- 6/ Shavarsh Toriguian, Legal Aspects of Oil Concessions in the Middle East, Hamarskain Press, Beirut, 1972, p.62. See also Chapter 2 of this book for a detailed treatment of the main characteristics of concessionary agreements in the Middle East.

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"After having undergone a dual process of emancipation and education, the governments are insisting on a higher price to be paid for the exploitation of their oil resources and on a number of additional advantages and safeguards. Such special provisions as a guarantee of minimum production, calculation of profits, before rather than after the home governments' taxation, participation of the host country's nationals on the boards of the companies, and insistence of career opportunities for national employees and at present /1972/ a demand for participation are illustrative of the new trends which reflect greater economic awareness and increased social consciousness on the part of host governments".

In October, 1973 (with a 70 percent increase in posted price) and later in December of the same year (by an additional 130 percent posted price increase), OPEC producing governments effected substantial changes in relationships with the oil companies. Thus with the goals of participation achieved and the ability to unilaterally impose huge increases in the price of oil, a quantum jump in a new power balance occurred between the oil companies and the producing countries. These changes of relationships have in many ways altered the ownership structure of the oil industry. While substantial shifts outside the producing sector have not taken place, it is useful to review in as great detail as possible, the components elements of the integrated oil industry.

Aside from the vertically integrated functions of international oil industry,^{1/} specialized companies allow for the decentralization of tasks and responsibilities and enable the continuance of decision-making and control by the oil companies which are highly experienced in carrying out the necessary complex technical functions.

Despite the changing environment, however, the international oil companies' participation in the industry are to be viewed against several general trends. The international oil companies carry out, in most cases, the research and

^{1/} These vertically integrated functions are generally referred to as exploration, drilling, production, transportation, refining, marketing and distribution.

development efforts necessary for developing techniques and equipment, either alone or jointly with the parapetroleum companies (service companies, process developers, construction companies, etc.). The oil companies' importance is, in fact, essentially based on their ability to control the know-how of practically all sectors of activity. **This** control of know-how (technology) appears to be decisive and to a great degree responsible for the oil companies' hold over the industry in spite of a practical loss of control over production. Witness, still, the number of joint-venture arrangements that are entered into by producing countries seeking a foothold in the petrochemical industry or even in ventures for the liquification of natural gas and the construction and operation of lube plants.

The refining and transport of oil and gas for world trade are highly dependent upon the application of specialized knowledge. The oil companies initiate and participate in the search for new technical solutions that are developed by the specialized companies and have a monopoly on the organizations and management technique from which they derive project competence.

At the global level, the importance of fuel minerals, i.e., crude oil, natural gas, coal and uranium, is stressed by the fact it represented 90 percent of all mineral value produced in 1975. The non-fuel minerals accounted for only 9 percent. The overwhelming significance of the value of crude oil (54 percent) can be seen from the following:

Table 2. World Value of Mineral Production

	<u>1975 Mineral Value</u>
<u>Fuel minerals</u> (crude oil, natural gas, coal, uranium)	<u>90%</u> of total value
of which:	
Crude oil	<u>54%</u> of total value
<u>Non-fuel minerals</u>	<u>10%</u>
of which:	
Copper, bauxite, iron, nickel	<u>9%</u>
other	<u>1%</u>

Source: See M. Tanzer, Metal Statistics, 1977.

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At the end of 1972, before the Middle East participation agreements became effective, the oil transnational corporations held substantial interests in ECWA oil producing countries.

Annex table III-1 shows the extent of these interests among the 'Seven Sisters' and CFP. As can be seen from the table, the major ECWA producers were dominated by large international oil companies. A minor producer such as Egypt showed foreign ownership to a lesser extent, by independents, and significant participation by its government or national oil companies.

After the participation agreements which were implemented in 1973 according to plans of the individual countries the situation of foreign dominance of ownership had completely shifted. The participation agreements had provided for gradual and increasing ownership shares in each country's oil industry until majority ownership had been achieved. Annex table III-2 illustrates the changes in relationships in the petroleum sector.

By 1976, many of ECWA major producers had taken on majority ownership or 100 percent ownership of the producing sector of the oil industry. Annex table III-3 portrays parent companies' equity interests in producing rights in ECWA member countries.

Although some exceptions can be observed, as a percentage of total actual production in the region, foreign interests account for a minority share of production. Since the end of 1976, additional changes have occurred, notably the takeover of Aramco by the Saudi Arabian government^{1/} and complete government control in Kuwait (retroactive from 1975).

Annex table III-4 illustrates quite clearly the situation which existed in 1972 in selected countries. This condition while prominent in the Middle East had its parallels also in the home countries of the transnational oil companies. For

^{1/} Such an arrangement has been virtually ready for signature for many months. The major point which is still to be resolved is exactly how much oil will be available to the four Aramco partners.

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example, Annex table III-5 demonstrates the power of eight American transnational oil companies in the oil industry in the United States in 1970. Collectively, these companies controlled 64 percent of reserves, 50.5 percent of crude production (data for 1961), 58.1 percent of refinery capacity and 55 percent of retail gasoline sales. The fact that these companies control domestic refining capacity in excess of their domestic production capacity suggests their interests in the control of production and refining in other centres.

Annex table III-6 shows crude oil production and refining capacity in OPEC countries in 1975 for eight (the seven sisters and CFP) international oil companies. It is to be noted that these companies in general refine in OPEC countries only a small proportion of the oil that is produced in OPEC countries. However, changing conditions have been reflected in the operations of the industry.

Annex table III-7 illustrates this trend very well for three key segments of the industry. The major companies in their operations outside North America have shown declining shares in percentage ownership in the developed and developing market economies in crude oil production, refining and marketing. It is very pronounced in production over the time period shown (1962 to 1975) and significant decline in refining and marketing - less than half in each case in 1975 compared to over sixty percent in 1963 is noticed. On the other hand, government ownership has risen dramatically for crude production, while appreciable increases have been registered in refining and marketing. In spite of these changes, however, government still held a small percentage ownership for refining and marketing in comparing with the "majors" and others.

The "majors" continue to exercise a strong hold on the oil industry through their control of the markets. Even though producing governments legally control the majority of crude oil production, they still continue to place heavy reliance on the "majors" for crude disposal. Annex table III-8 presents an estimate of the contractual access of current or former concessionaires to crude oil output in their host countries. The five American "majors" were in 1971 responsible for off-taking approximately 12 million barrels daily or 48 percent of total OPEC crude oil output. In the first nine months of 1976 these same "majors" were off-taking only slightly more oil on an absolute basis and their percentage share had declined to a little more than 43 percent. Other United States companies lifted

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less OPEC oil absolutely and relatively in the two time periods mentioned. The category designated as foreign which includes OPEC state companies, the other two non- U.S. majors as well as other government and non-government entities, was practically responsible for the entire amount of crude oil output increase. From these data, it is reasonable to infer that the OPEC state companies are participating fully in placing the incremental output of crude oil.

Annex table III-9 presents a comparison in two time periods, 1972 and 1976, of ownership shares distributed among foreign oil companies and national/government companies. The documentation provided with this table permits a review of the chronology of events pertaining to share interest shifts and other pertinent details.

With regard to exercising greater influence over their natural resources and especially with country objectives to promote the build-up of an integrated oil industry in their territories, refining capacity ownership in ECWA countries also need to be examined.

Annex table III-10 depicts the ownership percentage of refinery capacity in ECWA member countries. The following observations are summarized for the period end of 1977:

- Bahrain's large export refinery is owned by Caltex (Socal and Texaco).
- Democratic Yemen nationalized its large Aden export refinery in 1977 (formerly owned by BP).
- Egypt's largest refinery has an estimated 25 percent share ownership by Caltex; the balance is government owned.
- Iraq owns all its refineries.
- Jordan owns 50 percent of its quite small refinery.
- Kuwait's refinery capacity was owned 100 percent by the government after nationalization of Aminoil's refinery in 1977.
- Lebanon's refinery capacity was majority government-owned.

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- Oman, although a moderate producer, had no refinery.
- Qatar's very small refinery was completely government-owned.
- Saudi Arabia's refining capacity was owned 80 percent by the international "majors" before the takeover of Aramco. The Saudi Arabian government in early 1979 owns the majority interest in refining capacity, as it has been reported that the Ras Tanura export refinery (the largest in Saudi Arabia) is owned by Petromin.
- Syrian Arab Republic's refining capacity is completely government-owned.
- Yemen Arab Republic has no refineries.
- United Arab Emirates has a small refinery (located in Abu Dhabi) for local consumption. It commenced operations in 1976 and is 100 percent government-owned.

It is, therefore, apparent that existing ECWA member countries' refinery capacity of approximately 2.3 million barrels daily is predominantly government owned. Bahrain, Democratic Yemen, Kuwait and Saudi Arabia, based upon present requirements for domestic needs, are the region's principal exporters of refined petroleum products.

Annex table III-2 shows ECWA member countries' refineries by location and crude throughput at the end of 1977. It has been pointed out earlier that most of these refineries are government-owned. Bahrain, Kuwait, Saudi Arabia and Democratic Yemen have refineries of world-scale size which can benefit when operated at full capacity on a sustained basis from economies of scale. However, an examination of the secondary units (e.g., catalytic cracking, hydroprocessing etc.) indicates very little flexibility for these refineries to produce other than fuel products. Thus it may be concluded that the low level of conversion capacity does not permit the ready adaptation of refinery run programmes to meet market demand for shifts in product requirements at either the domestic or international levels.

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IV. INDUSTRY ACTIVITIES IN THE REGION

A. Oil Prospects in the Region - the Urge to Diversify

Like any other export industry responsible for a significant percentage of gross national products, the regional activities of the petroleum industry, are subject to global factors and trends, as well as to regional priorities. To understand these priorities, some broad features of the industry pertaining to supply and demand, reserve position, exploration, production and prospects for refining and petrochemical activities are discussed below.

OPEC countries instituted significant oil price increases in late 1973 and early 1974 which resulted in a four fold increase in the level of prices. Industrialized countries accelerated their oil development and production programmes, and significant non-OPEC production from offshore in the North Sea was brought on stream. Alaskan North Slope crude came on stream at levels in excess of one million barrels daily in 1978 and Mexico has become a major crude oil producer with significant export potential.

Large new increments of non-OPEC production, combined with relatively lower increments of demand in the industrialized countries, have generated a temporary surplus situation which was forecast under normal conditions to disappear by the mid 1980s, but it disappeared earlier as a result of the events in Iran.

OPEC's role as the most important supplier of petroleum crude has taken an added importance as the supply situation tightened.

Table 2 presents a summary of world reserves indicating that the Middle East and North Africa, where most OPEC member countries are located, is the area with the greatest amount of crude oil (and gas) reserves.

The recoverable reserves, defined as the "best present and future technologies of exploration, production and recovery", will deliver at a cost price tending

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Table 2: Crude Oil Recoverable Reserves

	Billion Barrels		
	Ultimate Recoverable Reserves <u>a/</u>	Already proven <u>b/</u>	To be proven
Centrally Planned Economies	433	100	333
Middle East and North Africa	797	402	395
Other Asia, Other Africa, Latin America and Australia	361	77	284
US and Canada	203	42	166
Western Europe	82	24	58
	<u>1381</u>	<u>645</u>	<u>1236</u>

Source: Francisco R. Parra, "World Energy Supplies and the Search for Oil"
MEES Supplement, Vol. XXI, No. 26, 17 April 1978.

Note: OPEC member countries hold 70 percent of proven recoverable reserves, nearly half of the world's ultimate recoverable reserves, 40 percent of proven gas reserves, 20 percent of world gas production, 35-40 percent of which is flared, and about 30 percent of all probable further additions to world gas reserves. See Ali M. Jadah, "An Outlook for the Oil Industry and the Role of OPEC", MEES Supplement, Vol. XXI, No. 34, 12 June 1978.

a/ Ultimate Recoverable Reserves, as defined by the Conservation Commission of the 1977 World Energy Conference, excludes oil from the very deep offshore, the polar seas, tar sands, stale oils and very heavy oils.

b/ Year-end 1976. See British Petroleum Company's "Statistical Review of the World Oil Industry", 1976.

"towards \$20 (1976 current value) per barrel in the year 2000".^{1/}

Petroleum exploration expenditures for developing countries in 1976, (excluding the centrally planned economies), account for only 30 percent of the worldwide exploration budgets, although, as a group, the developing countries account for 70 percent of all oil production outside the centrally planned economies (see table 3). Seventy percent of the world wide exploration budget is spent in the industrialized countries; North America alone accounts for roughly 50 percent of the total expenditure; and, non-producing oil importing developing countries account for only 4 percent of the world total. It is important to note that the oil exporting developing countries as a whole which comprises many ECWA countries, account for only 16 percent of the world total. The high level of exploration in North America reflects to some extent the fragmented nature of the United States petroleum industry where many different companies work on a single structure or field.

The paucity of exploration expenditures in developing countries is receiving careful attention within the United Nations system through World Bank efforts to stimulate oil and gas production in less developed countries, with anticipated financing of eight projects by fiscal year 1981 with loans totalling U.S.\$ 500 million per year.^{2/}

Within the framework of United Nations General Assembly resolution 32/176 of December 1977, Oman and Egypt, among other countries, have indicated their interest in the assessment of their financial needs for exploration and location of natural resources over the next 10 to 15 years.^{3/}

1/ Francisco R. Parra, "World Energy Supplies and the Search for Oil", MEES Supplement, Vol. XXI, No. 26, 17 April 1978.

2/ Oil and Gas Journal, "World Bank Hiking Production Loans", 2 October 1978.

3/ See Multilateral development assistance for the exploration of natural resources report of the Secretary General, A/33/256, 16 October 1978.

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Table 3: Estimated Exploration Expenditures in 1976^{a/}
(in million \$US)

	Geophysical Expenditures	Drilling Expenditures	Other Expenditures ^{b/}	Total Expenditures
1. <u>Developing Countries</u>	350	1,500	200	2,050
a. Oil exporting developing countries	200	850	100	1,150
b. Oil importing developing countries	150	650	100	900
of which non-producing OIDCs ^{c/}	50	200	50	300
2. <u>Developed Countries</u>	750	4,000	500	5,250
of which North America	600	3,000	400	4,000
<u>Total^{d/}</u>	1,100	5,500	700	7,300

Source: French Petroleum Institute.

a/ Orders of magnitude based on best guess estimates.

b/ Excluding bonuses and rentals.

c/ Oil importing developing countries.

d/ World total excluding centrally planned economies.

The prospects for world crude oil production hinge greatly upon the policies of Mid-East OPEC nations where production potential is greatest. Table (4)^{1/} presents a forecast by Exxon Corporation of the expected demands up to 1990 on OPEC member countries for crude oil. However, a crude oil forecast is strongly dependent upon developments in other energy areas. Because there are so many forecasts representing varying views of OPEC's production, a ten year forecast (1978 to 1987) by Saudi Arabia is also presented (table 5).^{2/} Where comparison points are appropriate, there is no significant difference between this and the Exxon forecast.

Export of crude oil is the major revenue bearing activity among ECWA countries. The dependence on petroleum exports can be seen in (table 6) for the ECWA members of OPEC ranging from 85.7 percent for Qatar and United Arab Emirates, 93.1 percent for Iraq and 96.1 percent for Saudi Arabia. These percentages represent the average percentage share of export earnings of the member countries for 1973-1975.

Petroleum refining and petrochemical activities are important elements in ECWA member countries' plans. Considerable expenditures are envisaged to create the necessary infrastructure (ports, roads, storage tanks, shipping terminals, etc.) and to construct development projects in order to meet internal consumption. Efforts are also being made to replace the dependence of their economies on an exhaustible asset with a more viable reliance on permanent reproduction processes. Saudi Arabia's Minister of Industry and Electricity puts it this way: "We want a fair share of new industrial production for ourselves... Industry is going to energy. It is no longer acceptable to us to export energy and have it come back to us in manufactured form at an exorbitant price. But it is logical for the processing of energy to be carried out in our country and for us to be partners in the processing operation".^{3/}

^{1/} Exxon Corporation, World Energy Outlook, April 1978, P.33.

^{2/} Ahmad Zaki Yamani, "The Changing Pattern of World Oil Supplies", MEES Supplement, Vol. XXI, No. 39, 17 July 1978.

^{3/} Ghazi Al-Qusabi, "Saudi Industry, the Hope and the Challenge", MEES Supplement, Vol. XXI, No. 29, 8 May 1978. .../

Table 4: World^{a/} Oil Supply 1976-1990

	<u>Million Barrels Per Day</u>		<u>US & Canada</u>	<u>Europe</u>	<u>Other Non-OPEC</u>	<u>OPEC</u>	
	<u>Total</u>	<u>Net Imports</u>				<u>Other OPEC</u>	<u>Mid-East OPEC</u>
1976	49	1	12	1	4	9	22
1980	57	1	12	3	6	10	25
1985	65	1	11	5	3	10	30
1990	72	1	11	6	10	10	34

Source: Adapted from Exxon Corporation, World Energy Outlook, April 1978, P.33.

- Note:
- Net imports are those from Communist areas (mainly Soviet Union).
 - About half the 11 million b/d 1990 production for the US and Canada is from resources not yet discovered.
 - Production from Europe is projected to reach 6 million b/d in 1990 as the North Sea is developed to maturity.
 - Other Non-OPEC production in 1990 assumes substantial growth in Mexican production and major discoveries in Latin America, Africa and the Far East.
 - The growth in non-OPEC supplies (1990 vs 1976) is expected to cover less than one-half the projected growth in total oil requirements.
 - The demand for OPEC oil will be more than 60 percent of total requirements in 1990 - 44 million barrels daily with Mid-East OPEC countries supplying 77 percent of the OPEC total.

a/ Outside Communist Areas (WOCA).

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Table 5: The OPEC Share in Free World Supplies - 1977-87

Year	OPEC Production (thous.b/d)	OPEC Production Annual Growth (%/yr)	World (outside Communist area) Total Supplies (thous.b/d)	OPEC Cumulative Production in (billion bbl)	Share of OPEC Production in World Total Supplies (%)
1977	31,138	---	49,660	---	62.70
1978	31,168	0.09	51,598	11.4	60.40
1979	32,370	3.85	53,450	11.8	60.56
1980	33,429	3.30	55,369	12.2	60.39
1981	34,857	4.24	57,407	12.7	60.71
1982	36,516	4.75	59,466	13.3	61.40
1983	38,050	4.20	61,660	13.9	61.76
1984	39,860	4.75	63,810	14.5	62.46
1985	41,500	4.11	66,150	15.1	62.73
1986	43,572	4.99	68,522	15.9	63.58
1987	45,630	4.72	70,980	16.6	64.28
Total				137.4	

Source: Ahmad Zaki Yamani, The Changing Pattern of World Oil Supplies, MEES Supplement, Vol XXI, No. 39, 17 July 1978.

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Table 6: Petroleum Share of Total Export Earnings of ECWA Member Countries

Country	Percent Share	
	1973-75	1976
	Average	
Bahrain	79.1	77.2
Democratic Yemen ^{1/}	88.5	83.2
Egypt	N.A.	N.A.
Iraq ^{2/}	96.4	98.3
Jordan	N.A.	N.A.
Kuwait ^{3/}	93.7	91.3
Lebanon	N.A.	N.A.
Oman ^{2/}	99.7	99.7
Qatar ^{2/}	97.8	96.7
Saudi Arabia ^{3/}	99.4	99.9
Syrian Arab Republic ^{2/}	48.6	62.4
Yemen	N.A.	N.A.
United Arab Emirates ^{2/}	97.7	96.8

Source: Organization of Petroleum Exporting Countries, Statistics Unit, Annual Statistical Bulletin 1976 (Vienna, 1977); International Monetary Fund, International Financial Statistics, Vol. XXVI, No. 9, (Washington D.C. 1978).

Notes: OPEC Members in ECWA: Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates.

OAPEC Members in ECWA: Bahrain, Egypt, Iraq, Kuwait, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates.

^{1/} Refined products.

^{2/} Crude petroleum.

^{3/} Crude petroleum plus refined products.

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Annex table IV-1 presents data, among other things, for OAPEC production and refining capacity. It shows that up to 1976 less than 12 percent of OAPECs production was refined within the countries. With the exception of Kuwait, none of the other large OAPEC producers refined a substantial portion of their oil domestically. The situation in 1978 has not improved to any great extent.^{1/}

Petroleum industry activities in a region such as ECWA are wide-ranging and are being carried out through a number of joint ventures under marketing, management and licensing agreements. Prior to discussing these agreements, a brief survey of petroleum construction activities is attempted with the view to detecting evidence of infrastructure development, company concentration in various activities, capacities for processed products and their implications for an export market strategy, etc.

Refineries Construction

Within the ECWA region, construction of refineries are either ongoing or planned in Abu Dhabi, Bahrain, Dubai, Egypt, Iraq, Jordan, Qatar and Saudi Arabia (see Annex table IV-2).

Gas Processing Construction

Abu Dhabi Gas Liquification Company has planned to build a gas processing plant under a contract with Bechtel and Fluor. Offtake will be in the form of a natural gas propane, butane and condensate. Project cost is estimated at \$1.5 billion and completion is scheduled for September 1980 (see Annex table IV-3).

Bahrain had scheduled, in 1976, the completion of a plant to extract liquified petroleum gases, naphtha and produce residual gas. The contractor is JGC (Japan Gas Corporation), and the project, now in the engineering stage, is estimated to cost \$72 million.

^{1/} See Oil and Gas Journal, Worldwide Issue, 25 December 1978.

Qatar Gas Company has under construction a plant to produce 600,000 tons per year of liquid petroleum gases and 300,000 tons per year of natural gasoline. Mitsubishi and Chiyoda, both Japanese companies are the contractors and the project scheduled for completion in 1980 will cost \$70 million.

In Saudi Arabia, Aramco is supervising projects now in various stages of completion to produce ethane, propane, butane and natural gasoline. Fluor Company is the contractor and no estimates of project costs are given. The project at Juaymah and Yanbu (in the planning stage) are designed to produce 270,000 barrels of the above products per day. These projects are part of Saudi Arabia's plan to recover chemical products from either associated gas or natural gas liquids.

In Iraq, the completion of a plant, at Zubair, with an annual capacity of 200,000 tons of liquified petroleum gas was scheduled for 1973. Ingeco of Milan is the contractor.

Sulfur Plant Construction

Qatar has planned for completion in 1982 at Umm Said a 20 tons per day unit to extract sulfur from refinery gases.

Saudi Arabia, in the name of Aramco, has contracted with Fluor to build two sulfur plants, now under construction, at Shedgum and Uthmaniyah (see Annex table IV-4).

Petrochemical Construction

Egyptian General Petroleum (with 75 percent share of capital) and Montedison have formed a joint venture to manufacture petrochemical products such as polyvinyl chloride, high and low density polyethylene (HDPE and LDPE) (Annex table IV-5). Other projects have been planned to manufacture primary petrochemicals such as paraxylene and anhydrous ammonia. Foster Wheeler Italiana is the contractor. The same firm is also the contractor for the expansion of the plant at Talktra with a daily capacity output of 1700 metric tons of urea under license for Stamicarbon. The project is scheduled for completion in 1979.

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Iraq is planning to complete a petrochemical complex at Basrah at a cost of \$ 1 billion with a capacity of 700,000 tons of petrochemicals per year, including such products as polyvinyl chloride, high and low density polyethylene, polypropylene, acrylic, benzene, toluene and polystyrene. Contractors for the project are Lummus, Thyssen, and Rheinstahl.

Jordan Fertilizer Industries at Akaba, has an urea project in the engineering stage consisting of two units each with a capacity of 1800 tons per day. The project is scheduled for completion in 1980 and Heurtey is responsible for the engineering.

Kuwait Petrochemical Industries Company has scheduled three projects for completion in 1984, each employing ethane, naphtha and natural gas as feeds. Expected output will include ethylene, low density polyethylene, monoethylene glycol and styrene monomer. The natural gas fed plant is expected to produce ammonia.

Oman has announced a government project to build an ammonia plant with daily production of 2,000 tons. No other details were given.

The expansion of an ammonia plant at Umm Said, Qatar, was expected to be completed late 1978 with a capacity output of 900 metric tons per day. The engineering of the plant was undertaken by Norsk Hydro and Davy Powergas. The plant is estimated to cost \$ 9 million.

The Norsk Hydro and Chiyoda were retained as engineers and contractors, respectively, for an urea plant expansion at Umm Said with a daily capacity output of 1,000 metric tons.

Qatar Petrochemical Company has the following two major facilities under construction at Umm Said and are expected to be completed by 1980:

(a) A 140,000 metric tons per year low density polyethylene plant using ethane as feedstock and costing \$100 million. Copper-Rust is the contractor with process supplied by CDF Chimie.

b) A 280,000 metric tons per year ethylene plant using ethane as the feedstock and costing \$200 million. Technip is the contractor.

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In Saudi Arabia, the Saudi Basic Industries Corporation (SABIC) has announced the establishment of a number of petrochemical joint ventures with international oil and chemical companies on a 50-50 percent shareholding basis. These major facilities are currently in the interim agreement with techno-economic feasibility and possibly engineering stages planned for completion in 1982 and 1983. These projects, designed to make Saudi Arabia a prominent producer of petrochemicals, will produce about 5 percent of total world petrochemical production in 10 years' time.^{1/} The following is a brief summary of planned petrochemical projects:

- SABIC with Celanese and Texas Eastern, at the Jubail Industrial Complex in Saudi Arabia's Eastern province, is planned to be completed in 1983. Using methane as raw material, the project will have a daily output of 2,000 short tons of methanol, 1000 metric tons of ammonia, and 1600 metric tons of urea.
- SABIC with Dow Chemical, at Jubail is expected to be completed by 1983. Using ethane as raw material, the plant will have an annual output of 400,000 metric tons of ethylene, 200,000 metric tons of low density polyethylene, and 300,000 metric tons of ethylene glycol.
- SABIC with Exxon, at Jubail, is planned to be completed in 1982 with an annual output of 240,000 metric tons of low density polyethylene, using ethylene as raw material.
- SABIC with Japanese Consortium, at Jubail, is planned to be completed in 1982 with a daily produce of 2,000 short tons of methanol.
- SABIC with Pecten (Shell Oil Company - U.S.) at Jubail, is planned to be completed by 1982. Using ethane as raw material, the plant will have an annual output of 656,000 metric tons of ethylene, 295,000 metric tons of styrene, 454,000 metric tons of ethylene dechloride, 231,000 metric tons of ethanol, and 355,000 tons of caustic soda.

^{1/} Supra note 6.

- SABIC with Mobil, at Yanbu, is planned to be completed by 1983. Using ethane as raw material, the plant is expected to have an annual output of 450,000 metric tons ethylene, 200,000 metric tons of low density polyethylene, 200,000 metric tons of ethylene glycol, and 320,000 metric tons of styrene.
- SABIC with Taiwan Fertilizer Company (TFC) have entered into an interim agreement for the construction and operation of a joint venture fertilizer complex at Jubail. The interim agreement provides for the preparation of a detailed feasibility study covering capital costs, financing, preliminary engineering data over the next twelve months as of January 1979. The initial cost of the project is estimated at \$300 million and TFC will offtake 60 percent of the Joint venture's output.
- Abdullah Hashim Establishment of Dammam, Saudi Arabia and Union Carbide Corporation of the United States agreed to set up a joint venture, called Carbide Hashim Industrial Gases Company, to be involved in the production of industrial gases in Saudi Arabia. Union Carbide will hold a 25 percent share in the joint venture and appoint the general manager to run the operation.

The Syrian Arab Republic has two industrial units under construction with a daily output capacity of 1,000 metric tons of ammonia and 1050 tons of urea. Kello are responsible for the engineering and the contractors are Geusot-Loire and Heurtey and the plants are expected to be completed in 1979.

Pipelining Construction

Pipeline construction is a continuing activity in the oil and petrochemical industry, and represents a vital part of any integrated production system. Field gathering pipeline systems, pipeline systems for distribution, storage, terminals, are vital infrastructure. Annex table IV-6 is primarily presented to demonstrate the pervasiveness of specialized parapetroleum companies in the petroleum industry worldwide. In Saudi Arabia, functions of engineering, procurement, engineering design and contracting were executed by Bechtel Inc., and Brown and Root.

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Transportation

The maritime transport of hydrocarbons is a complementary stage of the oil industry as a whole. An objective within OAPEC has been to link the sea transport of crude oil, products and gas liquids in order to ensure maximum flexibility in transporting them at appropriate costs. A joint Arab tanker company, the Arab Maritime Petroleum Transport Company (AMPTC), was established in 1972 to provide the basis for the cooperation and penetration of markets on a systematic basis.^{1/} Investment in tankers is a downstream operation whose viability depends upon access to product markets mainly in the OECD countries. Kuwait has built up a fleet of tankers which now participates in transporting an appreciable part of its output of crude oil and liquids. Kuwait is also building four large tankers to carry gas liquids, each with a capacity of 71,650 cubic meters.^{2/}

B. Contractual Framework

Industry activity at the regional level is taking place under a variety of circumstances, reflecting the development and other goals of individual countries. The spectrum of country endowments calls for a diversity of approaches to issues of ownership and control, operational and management, conditions for the transfer of technology, licensing of processes, and arrangements for the marketing of crude oil products and services. These various modes of attaining country objectives are discussed with special reference to their merits and drawbacks. Sovereignty over natural resources can be achieved only if developing countries adopt pragmatic measures for managing the affairs of the industry successfully. Collaboration and cooperation with the industrialized countries is considered important in overall plans of developing countries in order to accelerate their development and to eventually control the production and distribution of their natural resources.

^{1/} Ali A. Attiga, "Regional Cooperation in Downstream Investments: The Case of OAPEC" in OPEC Seminar on "The Present and Future Role of the National Oil Companies", Vienna, October 1977.

^{2/} Ali Khalifah Al-Sabah, Speech to Conference on Energy, Maritime Transport and Trade held in Kuwait, January 1979. See MEES, Vol. XXII, No. 13, 15 January 1979.

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1. Management Contracts

Many of the oil-dominant economies have achieved a majority equity position in the international and independent oil companies' holding and producing rights in their countries either through participation agreements or through nationalization. Management participation is exercised through representation at the level of the board of directors of companies, which is the platform for formulating broad policy guidelines to be followed by the management. However, the formal demarcation of responsibilities between the board, on which the government is represented, and the management which is provided by the transnational corporation is such that the board is sometimes relegated to a perfunctory role as far as key managerial issues are concerned.^{1/} Although host countries view this as a transitional phenomenon, the fact is that the new management arrangement forces a reliance on the transnational corporations' organizational structure for the provision of specialized and technical services such as the procurement of equipment, retention of consulting services, processing and the marketing of production. In some instances, the close ties of the transnational corporations with their various worldwide affiliates and subsidiaries lead to a monopoly stronghold which serve to strengthen the position of one partner at the expense of the other.

2. Marketing agreements

The oil transnational corporations, from the earliest era of the petroleum industry, gained oligopolistic market power through the amalgamation of small companies performing similar functions, thus resulting in horizontal integration, involving refining etc., and in vertical integration by acquiring assets in all segments of the industry such as production, pipelines, shipping and refineries.^{2/} Their objective was to minimize the risks of high capital requirements of production and to assure full-scale capacity operations while controlling market outlets. The companies sought to bring all stages of production and marketing within the corporate economy.^{3/} These highly integrated operations were coordinated in the

^{1/} See Samuel K.B. Asante, "Transnational Investment Law and Development: Restructuring Mineral Resource Agreements", UNCTAD, forthcoming publication.

^{2/} Anthony Sampson, the Seven Sisters.

^{3/} H. Girvan, "Multinational Corporations and Dependent Underdevelopment in Mineral Export Economics", Social and Economic Studies, December 1970.

developed countries which placed reliance on the producing developing countries for raw materials. Thus, with the ability to coordinate the multi-stage production chain in their home countries, the oil transnationals also controlled the markets. Despite the acquisition of control over their natural resources, the developing countries still had to rely on the transnationals to provide access to markets. This is manifested in long-term marketing agreements entered between a number of ECWA oil-producing countries and the transnationals, for volumes which were traditionally lifted by the transnationals. This strategy forms the backbone of producing countries marketing plans while an ancillary policy has been to market available surplus through government-to-government channels and independent oil companies. This practice is designed to enable producing countries national oil companies to understand the complexities of the international marketing environment and to develop the knowledge-intensive infrastructure necessary to market a worldwide commodity in the international markets.

During the oil-shortage of the early 1970s and when the first stages of the participation agreements were being implemented, several non-integrated buyers - traders, independent refiners, petrochemical producers and governments - were active in the market and numerous direct producer-to-consumer contracts were concluded. However, the oil transnationals have since, re-established the strength of integrated operations as they arranged access to nationalized crude through long-term contracts. The extent to which vertically integrated corporate structures dominate the oil markets vary from time to time with fluctuations in supply and demand. In the late 1970s, despite efforts at negotiating the prospects of market entry within the context of the Euro-Arab dialogue, little progress has been made by producing countries in securing direct access to major industrial markets for crude oil and petroleum products. If the problem of access to markets is not solved, the oil producing countries are likely to continue with the ongoing dependence on the oil transnationals, where the ownership of the crude oil will be under the legal control of the producing countries while the control of the markets will continue to rest with the TNCs. This dependence will give the TNC's the commercial control of the crude oil and refining activities in these countries.

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3. Licensing Agreements

Patent licensing agreements are frequently used as vehicles to achieve international market and product allocation, price discrimination and other restrictions both on an individual and collective basis. Patent rights generally confer on their holders the exclusive rights of exploitation which is tolerated by national legislations.^{1/} Licensing contracts, along with joint-ventures and management contracts, are the main arrangements for securing technical knowledge, although it has a principal drawback as it rarely covers the complete package of technical skills, including management, marketing and training that is required for operations.

Technology licensing is of importance to developing countries, yet TNCs guard it with secrecy for the following reasons:^{2/}

- a. Licensing posture disclosure will reveal the strategic policies of the TNCs, especially with regard to the countries where the TNCs wish to make direct investment.
- b. Anti-trust laws in most OECD countries hinder open discussions of licensing.
- c. Developing countries' knowledge of TNCs' licensing policies and terms would aid their efforts to limit restrictive clauses in licensing agreements.
- d. There is fear of leakage of information to competitors.
- e. Insufficient information disclosure concerning details could lead to generalizations concerning the arrangement, since TNCs want to be perceived as granting something special to each licensee.

^{1/} See Restrictive Business Practices of Multinational Enterprises: Report of the Committee of Experts on Restrictive Business Practices, OECD, Paris 1977.

^{2/} For a detailed discussion see, Phillip Townsend, "Transnational Corporations in World Petrochemical Industry", Report to UNCTAD, October 1978.

However, most of the technologies in the petroleum and petrochemical industries are not decisive in that, apart from the oil companies, other specialized companies, research institutes and engineering companies develop processes for sale and receive royalty payments (which are in the nature of economic rents) from them.

Therefore, in spite of their apparent limitations on disclosure, oil companies as well as petrochemical companies have a well-established history of licensing new processes and some superior petrochemical processes soon after their first commercialization. Specific examples are Shell Oil Company's ethylene oxide process, Standard Oil of Ohio's acrylonitrile process and Union Carbide Corporations' gas phase polyethylene process.

The licensing agreement is becoming an important instrument of technology transfer as developing countries enhance their industrial structure. Attachment IV-7 in the Annex provides a brief summary of the essential elements (subject to great variation from case to case) of a typical licensing agreement.

4. Technical Assistance Agreements

The technical assistance agreements is one of the new forms of contractual arrangements between host governments of developing countries and transnational corporations. Under this arrangement the transnational corporation is engaged to provide technical services for the execution of a project for a specified fee, without any propriety interest, whether immediate or ultimate, in the production of the enterprise.^{1/} In this type of agreement, the transnational corporation is essentially that of a contractor. Several broad features of the technical assistance agreement are worth summarizing as they conceivably represent a mode of doing business with the transnationals as producing countries tighten the grip of sovereignty over their natural resources.

^{1/} Asante, op.cit.

- a. The transnational corporation does not provide any capital for the project, so it does not assume any financial risks, this being the exclusive responsibility of the host government.
- b. The host government owns the natural resources, production from the project, equipment and other facilities relating to the project.
- c. In some ways similar to a turnkey project, the transnational corporation provides technical services in the form of technical data and technical assistance in all aspects of the execution of the project - geophysical and geological surveys, exploration drilling and development production drilling and production systems, engineering design and construction of processing facilities, process selection, planning and design, operating and maintenance procedures, training programmes, personnel recruitment procedures, and overall project evaluation, management and review. However, the transnational corporation plays no role in the training of the sales force, the marketing or the purchasing of any part of the project's output for its own account.
- d. Project responsibility is in the hands of a host country government agency that is designated the full power, authority and responsibility for the project. The project general manager, designated by the transnational corporation and appointed by the host country agency, manages a staff seconded to him and assumes responsibility for the transnational corporation's performance under the agreement. The host country agency retains certain prerogatives, such as in the areas of engagement of contractors and subcontractors. The issuance of final acceptance certificates to the contractors and final release and payment of the general contractors where the prior approval of the agency's managing director must be secured.
- e. Remuneration for the transnational corporation is on the basis of fees in the period preceding the commencement of production and a prescribed percentage of the sales value of the output for a stated period with effect from the commencement of commercial production.

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The main feature of the technical assistance agreement is in the assertion of control by the host government lacking technical expertise. The real benefit of this approach is doubtful as it shifts all the financial risks to the host country without gaining any benefits from the transnational corporations usual expertise in marketing.

5. Production-Sharing Agreements

Production-sharing agreements involve contracts whereby quantities of oil and gas produced are shared, using a prescribed distribution formula between the host government and the concession operator acting on his own or on behalf of himself and his business partners. Some general features of these agreements are discussed below:

a. The transnational corporation, acting as a general contractor, undertakes to provide all the financial and technical assistance and bears the risk of the operating costs required in carrying out the operations. For example, Agip, subsidiary of ENI signed a production sharing agreement with the Yemeni Petroleum and Mineral Corporation, in 1977, under which Agip would carry out exploration and development in a 10,000 square kilometres area offshore from the Democratic Yemen.^{1/} Also, the Syrian American Oil Company (SAMOCO), an American Company, initiated a production-sharing agreement with the Ministry of Petroleum and the Petroleum Company of the Syrian Arab Republic covering acreage in the Dair-Al-Zur area in the eastern part of the country.^{2/}

b. The period of the agreement could run up to 30 years with possible renewal terms to be renegotiated.

c. Expenditure commitments and the rate at which such commitments are to be expended are defined.

d. Bonuses for production are to be paid to the concession grantor according to agreed schedules for sustained production rates .

^{1/} MEES, Vol. XX, No. 24, 4 April 1977, p.10.

^{2/} MEES, Vol. XX, No. 39, 18 July 1977, P.15.

- e. Rental payments may be charged until exports commence.
- f. Relinquishment clause determines the actual percentage to be given up periodically. Provision is made concerning the producing areas, if any, that can be held after a stated time period.
- g. Recoverable costs will be charged to the 40 percent (this varies) of net production with the understanding that any excess in value of cost recoverable in any one year shall be shared according to a distribution formula by the government and the contractor.
- h. Production sharing of the remaining 60 percent (this varies) of net production shall be shared in proportion ranging between 80 and 90 percent to the government and 10 and 20 percent to the contractor, depending on the average net production.
- i. Title to the contractor's share of production passes at the point of export. The contractor acquires no title to the surface area. Equipment purchased by the contractor ultimately becomes the property of the government.

There is still some concern as to whether coproduction contracts yield higher returns on investment to the host governments, although the elimination of project sharing arrangements means the removal of potential source of conflict with transnational corporations such as the determination of profit, the computation of tax and the complexities of transfer pricing in inter-affiliate transactions.^{1/}

6. Joint-Ventures

The use of joint-ventures, as a means of engaging in international business, has sharply increased during the past fifteen years. Many developing countries have espoused this approach as a viable means of establishing control over the operations of transnational corporations by acquiring a majority interest in the equity

^{1/} Asante, op.cit.

of their local subsidiaries. The joint-venture substantially reduces by the amount of the partner's contributions to the venture, political and economic risks.

The joint-venture is considered an effective mechanism for the transfer of technology, in which a foreign firm or an agency of a government which is providing assistance participates with an entity of the developing country from the start of an exploration programme through the petroleum or mineral production. Such arrangements are designed to provide an inflow of knowledge, permit more local control of the company, and, in the case of the oil producing countries, such arrangements serve as a means of deploying its capital and crude oil in a manner consonant with the political, financial and developmental goals of the government.

The evolution of a managerial class, as distinct from shareholders, represents a cleavage between ownership, the province of the shareholders, and control, which is invariably wielded by the management. It has been pointed out that effective control is the exercise at the managerial level of decision making powers in such vital operational and managerial matters as budget, expansion and development programmes, appointment of top management, pricing, marketing, declaration of dividends, borrowing, reorganization, procurement of equipment and the integration of the undertaking with the developmental objectives of the host country. A major factor which detracts from the effectiveness of government-appointed directors or committee members and undermines the entire efforts of the host government to acquire control over the operations of a transnational corporation is, in a number of cases, lack of technical expertise. In recognition of this fact, some governments have established agencies staffed by full-time technical experts with overall responsibility for supervising the governments' interest in joint ventures in a particular sector.^{1/}

^{1/} Vincent D. Travaghni, "Licensing Joint-Ventures Aid Technology Transfer", International Commerce, July 28, 1969, p.11.

7. Technology Transfer^{1/}

Rapid economic growth depends, inter alia, upon the successful application of modern technology. Developing oil producing countries are concerned with the acquisition of technology in order to secure a larger share of the value added in converting crude oil raw materials to intermediate stages of processing and final consumer products. Some general observations pertaining to technology transfer are as follows:

- a. Technical innovation requires the transmission and absorption of a great deal of information that is technical and **organizational in nature**. The transnational corporation has been identified as a vehicle which performs this function efficiently.
- b. Substantial resources might have to be utilized not only to transmit technical information, but also to ensure its successful absorption. There is generally an unexpectedly high cost factor in effecting technology transfer.
- c. Participation in indigenous research and development is a prerequisite for success in absorbing foreign technology. Even among developed countries, technology transfer may be more costly than research and development conducted on the spot.
- d. The associated costs for research and development and engineering expenditure on imported technology is a small percentage of plant modifying or perfecting layout costs. In many cases, engineering costs are higher for indigenous technology versus imported technology. Whereas research and development involves the intensive utilization of scientists

^{1/} See David J. Teece, The Multinational Corporation and the Resource Cost of International Technology Transfer, Cambridge, Mass. 1976. Technology transfer is defined as the process of transferring from one production entity to another the know-how required to successfully utilize a technology. Two types of transfer are perceived, horizontal and vertical (viz. transfer within stages of an innovative process, e.g., basic research to applied research). Horizontal transfer, incorporates three stages of transfer: transfer of material, of design and of capacity. Capacity transfer, the most complex and of greatest concern, involves the transmittal and absorption of requisite technical information and skills.

and engineers, transfer of technology depends only incidentally on the services of research personnel. However, the transfer of technology depends upon competent manufacturing engineers and project managers.

e. The key cost variables in technology transfer are experience with technology transfer and with technology itself.

f. The transfer of scientific know-how and the capability to develop new technology, including the capability to modify imported technology and develop indigenous technology, may require the immigration of scientists and engineers for considerable periods of time. This process is facilitated by the advanced training of local personnel. The unembodied transfer of technology is a complex process affecting the import of information in areas such as methods of organization and operation, quality control and other manufacturing procedures.

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V. PRACTICES OF INTERNATIONAL OIL COMPANIES IN THE REGION: AN EVALUATION

After a general survey of the oil transnationals, their organization, their ownership and operation, and their activities in the region in the previous chapters, an attempt will now be made to investigate and highlight certain practices, situations or facts which are not altogether compatible with the national objectives and the national interest of the host countries in general. These are areas where, it is assumed, the governments of these countries will wish to register greater progress in furtherance of their own interests and the increase of their bargaining power through the increased power they recently witnessed and through additional acquisition of expert knowledge and skill.

The reason that certain practices can still be resorted to is because of the fact that the transnationals are still the dominant actors. They are independent and powerful forces in world economic affairs. It is true that most host governments have obtained legal control over transnationals, through acquisition of equity, joint-ventures or nationalization, but **substantial control**, in some cases, seems to be still exercised by the transnationals which have been entrusted with the management of the undertaking and possess the knowledge and expertise in technology and managerial know-how. The transnationals use such effective control for the benefit of the corporation network, as a whole, rather than for the benefit of the host country or the joint-venture. Moreover, the transnationals, even though managing a local joint-venture, often refer to the headquarters or the parent company for major decisions - technical, managerial or financial. Again, available evidence further indicates that the acquisition of majority interest in the local operations of a transnational corporation does not necessarily assure the host government an effective say in the downstream operations of the corporation, particularly in the area of marketing.

The strength of transnational companies is based, not only on their size and resources, but also on their economies of scale, advanced technology and know-how, superior organizational and managerial ability and unity of command, extensive market outlets, close interrelatedness in partnerships, and negotiating skills.

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The nature of the practices under consideration is, in general, such that the related facts are guarded with great secrecy and there is a good deal of resistance to disclose information. In many cases, the paucity of information related to certain practices makes it necessary to seek explanation through the results of other circumstantial evidence.

Any study on the practices of oil transnationals will have to rely on the hearings of the United States Congress on the industry, because valuable information regarding such practices could be obtained from the records of these hearings.

Within the limitations of the present study, an effort is made to bring to the surface certain practices and their related problems. At this stage, if the problems could be delimited and the right questions asked, then the path could be charted in the direction of a more detailed study of each one of the areas described hereunder.

A. Discriminatory and Restrictive Practices

A careful analysis of the terms, conditions, risk capital and profit-sharing in contracts related to projects in the North Sea, North Slope and other areas, and their comparison with similar contractual relations regarding projects in the Middle East, show substantial differences. This fact was, in the past due mainly to the weaker bargaining power of the host countries vis-a-vis the transnationals. With the strengthening of the host country bargaining power, this pattern is undergoing some change.

Again, with the intention of keeping their hold on the market, the major oil companies, in their third-party contracts for the sale of crude, have avoided selling to "outsiders" and have restricted their dealings, in most cases, to members of the group of their affiliates.

Of course, the Achnacarry Agreement dividing the world markets among the "majors", and the "Red Line" agreement reserving the Middle East to the same group of "majors" are monopolistic practices of the past, yet subtle inter-group practices are still resorted to in order to preserve some dominance over the market.

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B. Furtherance of Transnational Objectives Versus National Objectives

National objectives are decided by host governments in the light of national political and economic policies and priorities. Transnationals should contribute positively towards carrying out of the objectives of the country in which they operate. Their adherence to these objectives would enhance the integration of the activities of the transnational in the host country's economy and promote greater harmony in their relations with governments. The fact is, however, transnationals secure the greatest benefit possible for the entire network of the integrated operations, including the parent company and the affiliates. The transnational enterprise transcends national boundaries and comes close to forming an autonomous supra-national entity. For an illustration, one could refer to the international prorating implemented by transnational oil companies following the reduction in Arab oil exports to selected destinations in late 1973. In fact, the international oligopoly partially thwarted Arab action by diverting non-Arab oil supplies from countries not affected by Arab cutbacks to the affected countries. The redistribution was designed to protect their assets and markets in the countries affected by the cutbacks. Companies bringing on new sources of supply are expected to make more or less compensating reductions in their liftings from other sources. Thus, Exxon forecast for 1967 that, "Kuwait's growth would be retarded because major offtakers of that crude are developing new production in Africa and elsewhere".^{1/} For many years, the growing rate of Iraq was kept down to less than half that of Iran and Saudi Arabia. In addition, the "majors" made room during the late 1960's for the rapid increase taking place in Libyan production. Between 1965 and 1970, actual production fell below the historical growth rate for five years in the case of Kuwait, but, after 1970, Libyan production turned sharply downward and thereafter output in both Iran and Saudi Arabia rose to levels at or above their growth rates. This control system has been supplemented by the withholding of newly discovered sources of supply. Page of Exxon recounted the dismay occasioned by the discovery of a potential new source in Oman. "Just at this time, the producing department brought in their geologist who had just come back from Oman, and he stated, "I am sure there is a 10 billion oil field there", and I said, "Well, then, I am absolutely sure we don't want to go into it, and that settles it". "I might put

^{1/} Exxon Forecast, 1967

some money in it if I was sure we weren't going to get some oil, but not if we are going to get oil because we are liable to lose the Aramco concession, our share of the Aramco concession anyway, if we were going to back up any further on it by going into new areas".^{1/}

Discriminatory and restrictive practices have sometimes been adopted by transnationals in order to encourage internal dissension and counter OPEC's power. This has been done by playing off one OPEC nation against another, for example, by cutting back liftings from a single member country which has pressing needs for oil revenues in order to trigger a competition among OPEC member-States. Abu Dhabi was faced with such a situation early in 1975, when the liftings of the transnational companies dropped unexpectedly by two-thirds.

C. Two-Way Influence in the Home Countries

This influence is explained by the fact that the leaders of the transnational corporation and the greater part of the assets are found in the parent countries, which are industrially advanced. This phenomenon was recognized by an official Canadian source which said that "the investment decisions of foreign controlled corporations tend to reflect the laws and industrial priorities of foreign governments and economies".^{2/}

In their turn, the transnational corporations influence thier home governments and secure their backing. The extent to which a private transnational enterprise heeds or influences government objectives varies from one country to

^{1/} See Multinational Petroleum Corporations and United States Foreign Policy, Hearings before the Subcommittee on Multinational Corporations of the Senate Committee on Foreign Relations, 93rd Cong., 2nd Session, August 30, 1974, pt.7, p.309. Hereafter referred to as "Hearings of Multinational Petroleum Corporations".

^{2/} Foreign Direct Investment in Canada (Ottawa: Government publication 1972) P.5.

another. In several developed countries, governments have, on several occasions, responded to the wishes of their firms. The official reason usually adduced is service of national interest. For example, in January, March and October 1971, the U.S. Department of Justice waived antitrust provisions so that U.S. and other Western Petroleum companies could join forces to bargain collectively for production, tax and price matters vis-a-vis oil exporting governments. The stated reason for permitting collective company action, according to spokesmen, was the U.S. Government's desire to have an oil company bloc face OPEC in order to moderate oil price increases to Western consumers. Shell was apparently the prime mover behind the creation of a company bloc. Its purpose was to establish a mutual assistance programme calling for the sharing of oil supplies from various sources to counter any move by a single OPEC government, such as a production cutback affecting one or more companies.^{1/}

In another instance, a high-ranking Government official explained, in a statement to the petroleum industry in August 1973 "Our mission is to serve you, not regulate you... I pledge to you that the Department is at your service".^{2/}

D. The Abuse of Market Power

This abuse takes place in two different areas:

1. Exceptional Unjustified Profits whenever a so-called "Tight" Situation Arises:

In addition to the fact that the return on investment in the Middle East has been exceptionally high for the oil companies,^{3/} every political or

^{1/} Hearings of Multinational Petroleum Corporations Pt.6, especially pp.248-250 and pt. 5 pp.80-81 and 116-117.

^{2/} Business Week, July 12, 1974, P.8 for additional evidence on Transnational Oil Companies' close relation to their home governments, see Micheal Tanzer, "The International Oil Companies and Their Home Governments", in his Energy Crisis World Struggle for Power and Wealth (New York: Monthly Review Press, 1974), pp.38-53; and Zuhayr Mikdashi, Community of Oil Exporting Countries, (London: Allen & Unwin, 1972), pp.58-61.

^{3/} See John M. Blair, The Control of Oil (N.Y.: Vintage Books, 1978) p.51; and Zuhayr Mikdashi, A Financial Analysis of Middle Eastern Oil Concessions 1901-65 (N.Y: F.A. Praeger, 1966), pp.182,195, 212, 221.

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economic situation or opportunity has been seized to make additional profits. This has been done by the transnationals themselves or their affiliates. A recent example of this is the substantial rise in the prices of products on the spot market of Rotterdam and other markets as a result of the Iranian situation. The figures of crude production of OPEC countries for the month of January 1979 show an increase of 3 percent, in spite of the complete stoppage of Iranian oil, as a result of increased production in Saudi Arabia, Iraq and other countries.^{1/} Yet, the prices of refined products soared during the same month, although most refiners were getting their oil under long-term contracts at the official OPEC prices.

It is obvious that such unwarranted substantial increase in prices adds to inflation in the industrial countries and eventually brings about a decline in the value of the U.S. Dollar, thus causing reduced real income for the oil-producing countries.

2. Difficulties Laid before Producing Countries' Participation in Downstream Operations: Shipping, Refining and Marketing

a. Shipping

Currently, the total Arab fleet of tankers makes up about 2 percent of the world tonnage of tankers at a time when Arab States generate about 30 percent of world seaborne trade of oil,^{2/} measured by volume. The difficulties encountered seem to be caused basically by two facts: one is the impossibility, up till now, of obtaining a preference in the carriage of oil for tankers of Arab oil producing countries. The other is the fact that all oil is traded on a f.o.b. basis, leaving little room for the effective implementation of cargo reservation for national tanker fleets.^{3/}

^{1/} Petroleum Intelligence Weekly, March 12, 1979

^{2/} James Buxton, "OPEC Creates the Industrial Base", the Financial Times, March 26, 1979.

^{3/} Ibid.

Recently, the Kuwaiti Oil Minister, suggested that OPEC countries should link the sale of crude and products to the use of producing states' tankers in the carriage of a determined proportion of such crude and products.^{1/}

b. Refining:

Up to 1976, less than 12 percent of OAPEC's production of crude oil was refined within the member countries. This percentage can be increased substantially. It is logical for the processing of energy to be carried out in the producing countries and it is fair for such countries to be partners in the processing operations. Some countries (such as Algeria) are even planning to export nothing else but refined products by the year 1990.^{2/} The same can be said of other petroleum-based industries. The leaders of the area that made various public statements to the effect that it is no longer acceptable to them to export energy and have it come back to them in manufactured form at an exorbitant price.

In connexion with the sale of refined products by countries of the region when planned capacity comes into operation, the tying of such sale to the sale of crude oil is certainly a possibility.

c. Marketing

There has been a good deal of resistance on the part of the oil companies to allow the producing countries of the region to have a fair share of their downstream operations, in general, and their markets, in particular. The efforts at negotiating the prospects of market entry within the context of the Arab-European dialogue in the late 1970's have not produced great results. Little progress has been made by producing countries in securing direct access to major industrial markets for crude oil and petroleum products.

Here again, the tying of a certain percentage in the marketing for the producing country to the sale of crude oil would be a practical solution to the problem.

^{1/} Ibid.

^{2/} Louis Turner, "Urge to Diversify", the Financial Times, March 26, 1979

E. A Fuller Utilization of Gas Resources

There must be a fuller utilization of ECWA region's gas resources. As late as 1974, about two-thirds of the gas produced by the five leading Middle East oil producers was flared. This is a waste of valuable resource.^{1/} It is true that there are a number of plants in the region producing LNG (Liquified Natural Gas) and LPG (Propane and Butane) and a number of others are in construction. This may result in an over-capacity. However, there are other options for the producing countries. Gas may be reinjected into oil fields to increase or prolong existing recovery rates. Also, gas can be used as a fuel for home refineries, so as to free fuel oil for other purposes. Again, processing the gas for petrochemicals and fertilizer products would optimize returns on gas (a number of plants are in operation and others are being constructed). Finally, gas can be used as a cheap power of energy for energy intensive industries such as metal-processing.

The international oil companies should carefully study these options and, utilizing their technical know-how and financial capacity, should go into further research to develop new processes and find new avenues for the fuller utilization of flared gas, in the region.

F. Pricing Practices

1. Transfer pricing

The petroleum industry is well known for its high proportion of intra-firm trade and the inducements for manipulating transfer prices appear to be large, especially for tax and other reasons. Thus, in their endeavour to maximize long-term returns, it is not uncommon for transnational corporations to set prices for transactions among affiliates so as to reduce the global tax burden. This can be done, within limits, by splitting their vertically integrated profits and declaring comparatively lower taxable profits in high-tax countries, while declaring higher taxable profits in low-tax countries.^{2/}

1/ Ibid.

2/ For details on this issue see G. Jenkins and B. Wright, "Taxation of Income of Multinational Corporation: The Case of the United States Petroleum Industry" in the Review of Economics and Statistics (Cambridge, Mass) Vol.LVII, No. 1 (February 1975, P.7).

The accounting procedures and practices of the oil companies are highly technical. Moreover, the absence of well-established and recognized standards further complicates the matter. This is an area where additional study is recommended by persons skilled in accounting practices.

2. Other pricing

Recent experience shows that the oil companies, through their market dominance and oligopolistic practices, have been successful in passing on to the consumer the increase in price affected by the oil-producing countries. As a result of a campaign, the producing countries have been blamed for the increase in oil prices at the pump, ignoring the fact that a good part of that increase has gone to ensure the level of the profits of the oil companies.

G. Legal Action or Threatened Legal Action by Transnationals Against Acquirers of Nationalized Oil

In the earlier nationalization cases, the oil companies threatened legal action and in, some cases, actually brought such action against those who had acquired oil from the nationalizing governments.

Following the nationalization of its property by the Iranian Government in 1951, the Anglo-Iranian Oil Company brought actions in the courts of Aden, Italy and Japan asserting its title to cargoes of oil which had been brought within the jurisdiction of these courts. It was successful only in the Supreme Court of the Colony of Aden, in the case which is known by the name of the tanker involved, the *Rose Mary*.^{1/}

After the nationalization of BP assets in Libya and I.P.C. assets in Iraq, both companies threatened legal action by inserting notices in the papers to the effect that any buyer of the nationalized oil will have his title attacked before the courts. The threat was in addition to a declared boycotting of the nationalized oil.

^{1/} Anglo-Iranian Oil Co. V. Jaffrate and Others (1953) International Weekly Law Reports p.246. For information on additional cases, reference is made to: Anglo-Iranian Oil Co. v. S.U.P.O.R. Judgment of March 11, 1953, International Law Reports (1953), p.19. Anglo-Iranian Oil Co. v. S.U.P.O.R. Judgment of International Law Reports (1954), p.23. Anglo-Iranian Oil Co. v. Idemitsu Kosan Kabushiki Kaisha, (1953) International Law Reports, pp.305 and 312.

Although, most threats to bring legal action in recent cases were abandoned, yet the nuisance value emanating from threat was great.

H. Transfer of Technology

Regarding the unwillingness of the part of oil companies to transfer technology to the host countries, the former Minister for Petroleum and Mineral Resources of the Syrian Arab Republic, put the matter succinctly in a recent seminar, as follows:

"The results of the main trends of the oil companies in Europe and the U.S. have been to limit the diffusion and transfer of technology in host countries to daily running procedures, while the know-how of the industry was retained by their consultants and supervisors. These companies opposed any local moves to acquire the needed technologies, and impeded the functions of such successful enterprises as the petroleum refining industry in the developing world".^{1/}

Technology transfer and development became an official issue in the Arab world and has been fully discussed in regional and international circles since 1975. The Algerian memorandum on technology transfer discussed at OAPEC's summit (Algeria, March 1975) was the first detailed work on the transfer process.^{2/} Moreover, technology transfer and development were stressed at OAPEC's seminars held in Damascus (1975),^{3/} Versailles (1975)^{4/} and Tokyo (1975)^{5/}. An attempt was also made at the North-South dialogue with no results, because the developed countries refused to link the importing of oil and other natural resources with the transfer of technology. There is no doubt that, among the advantages which oil companies can offer oil-exporting countries is the acquisition of technology

^{1/} Ed. A.B. Zahlan, Impediments to the Technological Development of the Petroleum and Mineral Resources Sector in the Arab World. P. 434, in Technology Transfer and Change in the Arab World, Proceedings of a Seminar of the United Nations Economic Commission for Western Asia. (Pergamon Press, 1977).

^{2/} Arab Oil and Gas Magazine, Vol. 9, No. 8 (July 1975).

^{3/} Organization of Arab Petroleum Exporting Countries, Prospects of the Arab Refining Industry (Kuwait 1975).

^{4/} Organization of Arab Petroleum Exporting Countries, Opportunities for Cooperation between France and the Arab World (Kuwait 1975)

^{5/} Organization of Arab Petroleum Exporting Countries, Background Paper for Tokyo Seminar (Kuwait 1976)

and managerial know-how. Producing countries should have access to technology and should share in its benefits.

Transnationals have command over information, but they are not always willing to help in the areas of exchange of information and experience. Moreover, they have been unwilling to supply the host countries with certain data, for example information on advanced technology and on markets, by classifying such information as trade secrets. Furthermore, patent licensing agreements are frequently used by transnationals as vehicles to achieve international market and product allocation, price discrimination and other restrictions.

I. Research and Development

The oil-producing countries are developing an increased awareness of the fact that the oil reserves are not inexhaustible and that once depleted they cannot be replaced.

The recent limitation on production levels, decided upon by the producing countries, is an expression of this awareness. As the Deputy Secretary-General of OPEC put it in a recent address "Constraints on Middle East production capacities should be expected to increase overtime, with its reserves being depleted at rates much higher than the world's average".^{1/}

The oil companies, with the aim of contributing to the world effort to reduce dependency on oil, should develop strategies towards the diversification of sources of energy, and should devote a greater share of their returns to further research and development of new technology in alternative forms of energy such as solar energy (which is plentiful in the region), coal, oil shale, thermal energy, wind, etc...

^{1/} Richard Johns, "Middle East Oil", Financial Times of March 26, 1979.

J. Employment and Labour

The impact of transnationals on employment, wages, labour standards, working conditions and industrial relations in the countries in which they operate has been important enough to attract great interest from governments, international organizations and labour unions. The International Labour Organization, particularly, is currently examining social aspects of the operations of transnationals.

In this connexion, two facts are to be underlined:

1. Workers employed by transnational corporations usually form an "enclave" paid well above the average. This situation may have undesirable effects on the local market.
2. The size of the expatriate staff and the necessity for greater employment of nationals and for their accelerated promotion has always been a sensitive subject. In the words of Schurr and Homan, "the size of the expatriate staff has also proved to be a sensitive subject in that the presence of sizable blocks of expatriate technicians and management personnel acts as a continual and obtrusive reminder to the host country of the enclave character of the oil sector. All of the producing countries have worked for greater employment of their nationals and especially for accelerated promotion of more local personnel into staff and management positions".^{1/}

As regards safety and health standards, the transnationals should adopt in the host countries the standards they normally adopt in the home countries.

Transnationals have further been urged not to hamper the formation of free trade unions and to provide them with adequate information so that they can bargain effectively and take part in decisions regarding welfare, etc...

^{1/} Schurr & Homan, Middle Eastern Oil and the Western World, Elsevier, Holland 1971, P.104.

Related issues are the contribution of transnational corporations to national vocational training programmes and their personnel policies. Transnational corporations have been urged to employ local personnel in managerial and technical positions in order to upgrade employment opportunities for local cadres and to improve their managerial and technical abilities.

K. Political Influence and Corrupt Practices

The political influence wielded in the past by oil companies operating in the region is a well-known fact. For example, the Anglo-Iranian Oil Company in Iran between the two World Wars and during the immediate post-World War II period, and Iraq Petroleum Company in Iraq during the same period, resorted to political intervention for the protection of their interests, either directly or through their governments.

With the independence of the countries of the region, such direct power and influence in the oil producing countries have ended, but the oil companies still wield a good deal of power in their home countries and they have not hesitated to exert that power over their governments to seek protection overseas.

As regards political contributions and "pay-offs", it has not been possible to find any direct evidence of such practices in the region. However, vigilance becomes the order of the day since in the recent past the oil companies have resorted to such practices in other countries to protect their interest. Thus oil companies have disbursed huge sums of money by way of political contributions between the years 1963 and 1973, to political parties and other pressure and interest groups in Italy, South Korea, United States and Canada.^{1/}

The general issue of improper payments in international commercial transactions was taken up by the General Assembly in 1975 and a resolution was adopted condemning such practices by the parties concerned and calling upon host and home governments to take appropriate measures and to exchange, bilaterally

^{1/} Hearings of Multinational Petroleum Corporations, "Internal Audit Report of the Special Budget Bank Account of ESSO Italiana, August 30 of 1972", pt. 2, pp.268-313; pt. 12, pp.246-247, 256,316-318.

and multilaterally, information on the subject.^{1/}

The Economic and Social Council of the United Nations decided to establish an ad hoc inter-governmental working group to elaborate the details of an international agreement to prevent and eliminate the occurrence of illicit payments.^{2/}

^{1/} General Assembly Resolution 3541(XXX) of 26 January 1976.

^{2/} Economic and Social Council Resolution 2041(LXI) of 5 August 1976.

SUMMARY AND CONCLUSIONS

For many years, the oil companies operating in the Middle East under far-reaching concession agreements, had been able to establish full control over the production of oil by determining their own development programmes, levels of production, export and, most importantly their own pricing policies. However, in recent years, their power to influence events in the producing countries has been rapidly eroded, as the oil States have asserted control over their own resources by cutting back the privileged position previously held by a small number of major international oil companies.

The creation of the Organization of Petroleum Exporting Countries (OPEC), now accounting for nearly half of total world production, was instrumental in the decline of the power of the oil "Majors" to dictate events. The apparent demise of the consortium of western oil companies in Iran has dramatically marked the latest stage in the declining power of the international oil companies in the Middle East.

The decline of power of transnational oil corporations and OPEC dominance have brought about the emergence of national oil companies in the region. Under present conditions, these national oil companies conduct mostly production activities. Their objective is to develop integration subsequent to the production stage. Current efforts are primarily directed towards increasing refining capacities.

Co-operation among national oil companies takes place through common membership in intergovernmental organizations, namely OPEC and OAPEC.

.../

Since October 1973, effective ownership of production, through majority or total holding of equity or straightforward nationalization, has been transferred from the operating companies to government or to their national oil companies. However, in most cases the international oil companies are still present as service contractors, technical advisers, partners in joint ventures or simply as lifters of crude. This practice is likely to continue until the national oil companies have fully developed their technical capabilities.

The international oil companies are still dominant actors in this field. Most host governments have entered into a number of joint-ventures with transnationals, but have entrusted the management of the undertaking to the latter. Through the phenomenon of inter-affiliate transaction and through superior technical and managerial know-how, the transnational oil corporations exercise effective control over the market. Their integrated operations, their financial capacity and technological research ability further strengthen their position.

In the future, it is clear that the oil producing countries of the region will wish to take an increasingly direct role in the marketing of their crude and to move downstream in the industry into refining, petrochemicals and shipping. The oil producers would wish to diversify and would not remain mere exporters of crude. They have already taken many steps in the direction of industrialization based on the oil sector: they have built refineries and petrochemical plants; they have also gone into transportation and into the production of liquified gas.

.../

The producing countries of the region will gradually come to refine and transport more and more of their oil and create their own hydrocarbon-based downstream industries. The small share of the international markets, which they have been able to secure in the areas of refining, shipping and marketing, may have to be enlarged. Much of the groundwork is being laid by the Organization of Arab Petroleum Exporting Countries, (OAPEC), by creating some of the institutions for Arab downstream industrial development and establishing various joint ventures. OAPEC is also taking a leading role in negotiating and discussing with the industrial countries the creation of a new economic order. A practical expression of this concern is the talks it is holding with EEC with the aim of securing a smooth entry into the European market for the refining capacity which is being planned or constructed in the OAPEC countries, by avoiding or reducing the European quota and tariff barriers. However, since a large part of the market is still being controlled by the international oil companies, further enlargement of the Arab share of the market can only be secured with the co-operation of the said companies. Such co-operation has not always been forthcoming. Certain restrictive and discriminatory practices especially in the areas of marketing and transfer of technology, have slowed down this process of securing a more equitable share of the benefits for the oil-producing countries. Moreover, the transnational oil corporations, in pursuit of their own short-term interests, have sometimes failed to contribute positively towards carrying out the overall development objectives of the country in which they operate. The adherence of the transnationals to these objectives would enhance the integration of the transnationals' activities in the host country's economy and promote greater harmony in the relations between transnationals and governments.

.../

An example of adherence and contribution to national objectives would be the decision by the transnationals operating in the region to reinvest in the region, with the aim of gradually replacing the shrinking petroleum base by diversified industries. Another example would be the fuller utilization of gas resources.

A brief examination of the transnationals' practices which hinder and jeopardize further progress in co-operation reveals increased consciousness of the producing countries towards some of the problems that arise, with a view to defining the areas which need further investigation. It is through such an investigation that the elimination of restrictive and discriminatory practices and the enhancement of co-operation between transnational oil corporations and host governments in the areas of transfer of technology, exchange of information, training and marketing could become possible.

ANNEXES: TABLES
ATTACHMENTS

Table II-1 Operations of major international oil companies in 1976
(millions of metric tons per year)

Crude Oil Supply		Crude Oil Processed		Petroleum Products Sales	
1) Exxon 27	279	1) Exxon	218	1) Exxon	268
2) Royal Dutch Shell	237	2) Royal Dutch Shell	210	2) Royal Dutch Shell	260
3) Texaco	201	3) Texaco	143	3) Texaco	164
4) BP	177	4) S.O. California	113	4) S.O. California	117
5) S.O. California	177	5) Mobil	102	5) Mobil	113
6) Mobil	103	6) BP	95	6) BP	94
7) Gulf	90	7) Gulf	85	7) Gulf	80
8) CFP	75	8) S.O. Indiana	59	8) S.O. Indiana	62
9) S.O. Indiana	46	9) CFP	51	9) CFP	59
10) ENI a/	45	10) SNEA	35	10) Atlantic Richfield	41
11) Continental	30	11) Atlantic Richfield	34	11) Sun Oil	36
12) Atlantic Richfield	26	12) ENI a/	32	12) ENI a/	35
13) Getty	26	13) Sun Oil	30	13) Continental	30
14) SNEA	18	14) Phillips	30(e)	14) Phillips	30(e)
15) Sun Oil	12	15) Continental	23	15) SNEA	28
15 Companies Total	1,547	15 Companies Total	1,260	15 Companies Total	1,417
World Total ^{b/}	2,325	World Total ^{b/}	2,248	World Total ^{b/}	2,150(e)

Source: M. Hiegel, "Ownership of Petroleum Technologies" (ESA/NRET/AC.11/BP/3), Background paper presented at the United Nations Interregional Symposium of State Petroleum Enterprises in Developing Countries, Vienna, 7-15 March 1978.

Note: The following conversion rate was adopted: 1 bbl/day = 50 t/year.

a/ Estimate.

b/ Excluding centrally planned economies.

Table II-2 Expenditures and investments in assets
(in million dollars)

	Other										Unallo- catedd	Free World
	United States	Canada	Venezuela	Western Hemisphere	Europe	Africa	Middle East	Far East				
SCHEDULE 1												
Capital and Exploration Expendi- tures												
Year 1976												
Crude Oil and Natural Gas	13,135	1,550	250	1,175	4,200	1,000	1,375	1,175	0	23,860		
Natural Gas Liquids Plants	325	150	40	75	50	200	675	400	0	1,915		
Total Production	13,460	1,700	290	1,250	4,250	1,200	2,050	1,575	0	25,775		
Pipe Lines	3,625	1,135	15	750	1,100	525	1,250	175	0	7,575		
Tankers	275	0	0	0	0	0	0	0	8,400	8,675		
Refineries	1,575	325	10	1,100	1,450	375	925	1,150	0	6,910		
Chemical Plants	2,200	75	0	475	1,200	150	150	250	0	4,500		
Marketing	625	175	5	150	725	125	25	350	0	2,180		
Other	325	45	15	100	225	50	275	75	0	1,110		
Total Capital Expenditures	22,085	2,455	335	3,825	8,950	2,425	4,675	3,575	8,400	56,725		
Geological & Geophysical Expense and Lease Rentals	1,375	250	10	125	325	175	75	200	0	2,535		
Capital & Exploration Expenditures	23,460	2,705	345	3,950	9,275	2,600	4,750	3,775	8,400	59,260		
SCHEDULE 2												
Gross Investment in Fixed Assets December 31, 1976												
Crude Oil and Natural Gas	78,475	9,725	5,275	7,675	12,650	5,975	8,125	4,950	0	132,850		
Natural Gas Liquids Plants	4,190	1,425	310	450	440	1,250	865	1,125	0	10,055		
Total Production	82,665	11,150	5,585	8,125	13,090	7,225	8,990	6,075	0	142,905		
Pipe Lines	15,750	1,400	500	3,500	4,650	2,240	3,340	910	0	32,290		
Tankers	2,050	0	0	0	0	0	0	0	52,575	54,625		
Refineries	19,650	3,440	775	7,800	21,575	2,175	3,700	14,265	0	73,380		
Chemical Plants	11,900	635	0	1,815	9,200	265	460	1,815	0	26,090		
Marketing	13,475	2,425	175	2,325	12,825	1,740	580	5,500	0	39,045		
Other	3,985	400	80	725	1,625	240	1,175	620	0	8,850		
Total Gross Investment	149,475	19,450	7,115	24,290	62,965	13,885	18,245	29,185	52,575	337,185		

(table II-2 continued)

	United States	Canada	Venezuela	World		Africa	Middle East	Far East	Unallo- cated	Free World
				Western Hemisphere	Western Europe					
SCHEDULE 3										
Net Investment in Fixed Assets										
December 31, 1976										
Crude Oil and Natural Gas	42,340	7,370	960	3,775	11,710	4,135	4,715	3,590	0	78,595
Natural Gas Liquids Plants	1,980	1,055	165	275	340	980	795	970	0	6,540
Total Production	44,320	8,405	1,125	4,050	12,050	5,115	5,510	4,560	0	85,135
Pipe Lines	11,260	740	10	2,510	3,760	1,485	2,110	635	0	22,510
Tankers	1,230	0	0	0	0	0	0	0	44,150	45,380
Refineries	9,120	2,045	90	5,670	12,410	1,445	2,300	9,365	0	42,445
Chemical Plants	7,035	350	0	1,310	6,550	245	415	1,185	0	17,090
Marketing	7,230	1,375	50	755	5,170	600	145	2,855	0	18,180
Other	2,335	350	50	575	1,460	160	300	490	0	6,220
Total Net Investment	82,530	13,265	1,325	14,870	41,400	9,050	11,280	19,090	44,150	236,960

Source: The Chase Manhattan Bank, Capital Investments of the World Petroleum Industry - 1976 (N.Y. 1977).

Table II-3 Capital and exploration expenditures
(in Million Dollars)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
WORLD											
Crude Oil and Natural Gas	5,400	5,595	5,875	7,075	6,650	6,520	9,590	12,415	18,765	18,295	23,860
Natural Gas Liquids Plants	740	405	585	465	580	695	515	510	770	960	1,915
Pipe Lines	760	860	1,080	910	850	1,200	1,230	1,230	2,450	5,995	7,575
Tankers	1,290	1,255	1,650	2,050	2,575	2,875	3,775	6,550	8,900	9,240	8,675
Refineries	2,570	2,585	2,550	3,210	4,000	4,755	4,955	4,865	7,720	8,725	6,910
Chemical Plants	1,340	1,565	1,480	1,310	1,525	1,535	1,350	1,175	1,995	3,145	4,500
Marketing	2,410	2,705	2,665	2,805	3,220	3,380	2,825	2,480	2,215	2,160	2,180
Other	565	605	615	550	725	840	710	770	875	1,105	1,110
Total Capital Expenditures	14,675	15,575	17,900	18,375	20,125	21,800	24,950	29,995	43,700	49,625	56,725
Geological & Geophysical Expense and Lease Rentals	1,110	1,190	1,330	1,380	1,340	1,395	1,540	1,700	2,185	2,325	2,535
COMBINED	15,785	16,765	19,230	19,755	21,465	23,195	26,490	31,695	45,885	51,950	59,260
UNITED STATES											
Crude Oil and Natural Gas	3,600	3,750	4,675	4,525	4,110	3,185	5,740	7,290	11,225	9,055	13,135
Natural Gas Liquids Plants	170	215	250	225	225	200	175	150	225	325	325
Pipe Lines	275	360	425	300	450	550	300	450	1,400	3,500	3,625
Tankers	25	40	50	100	100	125	125	100	200	225	275
Refineries	775	775	800	950	1,075	1,050	900	1,050	1,775	2,100	1,575
Chemical Plants	800	825	650	575	550	500	450	425	825	1,500	2,200
Marketing	1,100	1,250	1,150	1,250	1,450	1,350	1,100	850	650	650	625
Other	380	375	350	250	265	290	260	325	325	370	325
Total Capital Expenditures	7,125	7,650	8,350	8,175	8,225	7,250	9,050	10,640	16,625	17,725	22,085
Geological & Geophysical Expense and Lease Rentals	650	615	715	725	665	715	740	850	1,130	1,195	1,375
COMBINED	7,775	8,265	9,065	8,900	8,890	7,965	9,790	11,490	17,755	18,920	23,460
CANADA											
Crude Oil and Natural Gas	550	525	500	675	650	725	850	1,000	1,150	1,125	1,550
Natural Gas Liquids Plants	50	60	75	75	165	150	100	75	150	150	150
Pipe Lines	30	50	85	50	35	75	60	80	75	160	135
Refineries	55	50	145	150	240	210	325	290	400	410	325
Chemical Plants	40	30	50	50	25	15	10	15	30	70	75
Marketing	125	150	150	150	160	150	150	155	190	175	175
Other	25	30	20	25	25	20	30	35	80	120	45
Total Capital Expenditures	875	975	1,025	1,175	1,300	1,345	1,525	1,650	2,075	2,210	2,455

(table II-3 continued)

	1965	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
CANADA (Cont'd)											
Geological & Geophysical Expense and Lease Rentals	150	175	175	175	175	150	150	175	225	200	250
COMBINED	1,025	1,150	1,200	1,350	1,475	1,495	1,675	1,825	2,300	2,410	2,705
VENEZUELA											
Crude Oil and Natural Gas	120	120	175	200	205	210	150	200	290	240	250
Natural Gas Liquids Plants	0	5	10	25	25	5	5	5	15	10	40
Pipe Lines	10	5	5	15	20	10	5	5	10	0	15
Refineries	5	10	40	95	35	45	30	10	20	15	10
Chemical Plants	0	0	0	0	0	0	0	0	0	0	0
Marketing	10	5	5	5	10	5	0	0	0	10	5
Other	5	5	5	0	5	5	5	0	0	15	15
Total Capital Expenditures	150	150	240	340	300	280	195	220	335	290	335
Geological & Geophysical Expense and Lease Rentals	10	15	15	20	15	30	25	25	30	30	10
COMBINED	160	165	255	360	315	310	220	245	365	320	345
OTHER WESTERN HEMISPHERE											
Crude Oil and Natural Gas	255	250	350	325	360	525	550	575	925	950	1,175
Natural Gas Liquids Plants	5	10	50	10	10	5	0	50	50	75	75
Pipe Lines	50	60	200	125	60	220	175	75	260	625	750
Refineries	300	160	275	400	400	650	475	550	1,025	1,250	1,100
Chemical Plants	50	125	150	175	100	75	15	20	100	150	475
Marketing	75	100	100	100	100	150	125	100	125	150	150
Other	25	30	100	65	130	100	60	65	50	75	100
Total Capital Expenditures	750	735	1,225	1,200	1,160	1,725	1,400	1,435	2,535	3,275	3,825
Geological & Geophysical Expense and Lease Rentals	50	60	75	75	85	76	75	75	150	150	125
COMBINED	810	795	1,300	1,275	1,245	1,800	1,475	1,510	2,685	3,425	3,950

(table II-3 continued)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
WESTERN EUROPE											
Crude Oil and Natural Gas	175	220	250	250	300	500	650	1,300	2,375	3,600	4,200
Natural Gas Liquids Plants	0	5	25	25	50	75	50	25	40	50	50
Pipe Lines	225	150	175	75	75	150	400	350	475	1,000	1,100
Refineries	950	1,025	900	850	1,050	1,400	1,500	1,550	2,250	2,350	1,450
Chemical Plants	325	425	350	350	725	800	800	600	850	1,100	1,200
Marketing	750	800	825	825	900	1,000	825	800	750	700	725
Other	75	100	100	105	160	225	225	200	180	250	225
Total Capital Expenditures	2,500	2,725	2,625	2,480	3,260	4,150	4,450	4,825	6,920	9,050	8,950
Geological & Geophysical											
Expense and Lease Rentals	75	100	125	125	100	75	125	175	225	300	325
COMBINED	2,575	2,825	2,750	2,605	3,360	4,225	4,575	5,000	7,145	9,350	9,275
AFRICA											
Crude Oil and Natural Gas	350	325	475	525	450	525	500	500	750	825	1,000
Natural Gas Liquids Plants	5	30	100	50	75	135	100	125	140	175	200
Pipe Lines	65	115	80	110	100	80	90	55	50	250	525
Refineries	60	50	40	90	85	100	200	165	150	250	375
Chemical Plants	0	0	25	0	0	5	0	5	25	50	150
Marketing	75	75	60	50	75	100	100	100	75	100	125
Other	5	5	5	0	5	30	15	25	25	25	50
Total Capital Expenditures	560	600	785	825	790	975	1,005	975	1,215	1,675	2,425
Geological & Geophysical											
Expense and Lease Rentals	75	100	75	85	100	150	175	125	150	200	175
COMBINED	635	700	860	910	890	1,125	1,130	1,100	1,365	1,875	2,600

.../

(table II-3 continued)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
MIDDLE EAST											
Crude Oil and Natural Gas	250	275	275	325	275	450	500	850	975	1,000	1,375
Natural Gas Liquids Plants	5	15	25	5	5	25	10	5	25	25	675
Pipe Lines	95	60	85	210	75	65	140	130	120	350	1,250
Refineries	175	125	150	100	140	125	225	300	450	400	925
Chemical Plants	25	10	55	10	25	40	25	30	40	50	150
Marketing	25	25	25	25	25	25	25	25	25	25	25
Other	25	40	10	55	20	95	50	50	135	175	275
Total Capital Expenditures	600	550	625	730	565	825	975	1,390	1,770	2,025	4,675
Geological & Geophysical											
Expenses and Lease Rentals	50	50	50	50	50	50	50	50	50	50	75
COMBINED	650	600	675	780	615	875	1,025	1,440	1,820	2,075	4,750
FAR EAST											
Crude Oil and Natural Gas	100	130	175	250	300	400	650	700	1,075	1,500	1,175
Natural Gas Liquids Plants	5	5	50	50	25	100	75	75	125	150	400
Pipe Lines	10	20	25	25	35	50	60	85	70	110	175
Refineries	350	350	600	575	975	1,175	1,300	950	1,650	1,950	1,150
Chemical Plants	100	150	200	150	100	100	50	80	125	225	250
Marketing	250	300	350	400	500	600	500	450	400	350	350
Other	25	20	25	50	115	75	65	70	80	75	75
Total Capital Expenditures	940	975	1,425	1,500	2,050	2,500	2,700	2,410	3,525	4,360	3,575
Geological & Geophysical											
Expense and Lease Rentals	50	75	100	125	150	1	200	225	225	200	200
COMBINED	890	1,050	1,525	1,625	2,200	2,650	2,900	2,635	3,750	4,560	3,775
FOREIGN FLAG TANKERS											
	1,265	1,215	1,600	1,950	2,475	2,750	3,650	6,450	8,700	9,015	8,400

Source: The Chase Manhattan Bank, Capital Investments of the World Petroleum Industry - 1976 (N.Y. 1977)

Table II-4 A few financial characteristics of major international oil companies in 1976

Fortune Rank 1/	Oil Company	Country	Assets (\$ million)	Sales (\$ million)	Net Income (\$ million)	Research and Development		
						(\$ million of sales)	per cent of sales	per cent of net income
1	Exxon	USA	36,331	43,630	2,641	202	0.42	7.6
3	Royal Dutch/Shell Group	Netherlands/UK	29,646	36,087	2,340	265	0.70	11.3
5	Texaco	USA	18,194	26,452	870	79	0.30	9.1
6	Mobil	USA	18,765	26,063	943	..	-	-
8	S.O. California	USA	13,765	19,434	880	75	0.40	8.6
9	BP	UK	14,926	19,103	325	46	0.24	14.2
10	Gulf Oil	USA	13,449	16,451	816	..	-	-
16	S.O. Indiana	USA	11,213	11,532	893	67	0.58	7.5
18	ENI	Italy	12,804	9,983	37(e)	42	0.42	113.5*
19	CFP	France	8,945	9,920	35	32	0.32	91.4*
22	Shell Oil	USA	7,836	9,230	706	80	0.87	11.3
20	Atlantic Richfield	USA	7,834	3,463	575	..	-	-
33	Continental Oil	USA	6,041	7,958	460	24	0.30	5.2
37	SNEA (ELF)	France	9,771	7,536	340	35(e)	0.46	10.3
46	Tenneco	USA	7,177	6,389	384	..	-	-

Source: M. Hiegel, "Ownership of Petroleum Technologies" (ESA/MRET/AC.11/PB/3), Background paper presented at the United Nations Interregional Symposium of State Petroleum Enterprises in Developing Countries, Vienna, 7-15 March 1978.

1/ Ranked by sales - Fortune, August 1977, p.240

(e) Estimate

(*) Non significant because of low net income for the year.

Table II-5 Rates of Return*

(in million US Dollars)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Average Invested Capital - Worldwide	10.8	11.3	11.5	11.7	11.0	10.4	10.7	9.7	15.5	19.2	12.6	13.8
United States	11.2	12.3	12.6	12.3	10.9	9.9	9.3	9.6	10.5	14.6	12.9	15.2
Rest of World	10.2	9.9	10.1	11.0	11.2	11.0	12.5	9.9	20.9	23.9	12.7	12.3
Average Borrowed and Invested Capital	10.1	10.5	10.6	10.8	10.4	9.9	10.1	9.4	14.0	17.3	12.0	12.9
Average Total Assets	7.5	7.6	7.5	7.4	6.3	6.2	6.3	5.5	8.5	10.0	6.1	6.6
Average Gross Fixed Assets	14.8	15.3	15.5	15.9	15.1	15.4	17.4	13.6	24.6	37.6	30.0	23.0

Source: The Chase Manhattan Bank, Energy Economics Division, 1976, Financial Analysis of a Group of Companies
(New York, 1977).

Table II-6. Review of the existing petroleum institutes in the OPEC-OAPEC countries

Country	Training					Organization	Year of Creation	Higher Authority	Comments
	OPEC	OAPEC	Scientists	Engineers	Technicians				
Algeria	X	X	X	X	X	Algerian Institute of Petroleum (IAP), Several Locations	1965	Ministry of Energy and Petroleum	-
Saudi Arabia	X	X	X	X	X	University of Petroleum and Minerals (UPM), Dharan	1964	Ministry of Higher Education	Research Section Being Started Up
Bahrain	-	X	-	-	-	-	-	-	-
Egypt	-	X	-	-	X	Egyptian Petroleum Research Institute (EPRI), Cairo	1970	Academy of Sciences and Techniques	-
U.A.E.	X	X	-	-	-	-	-	-	-
Ecuador	X	-	-	-	-	-	-	-	-
Gabon	X	-	-	-	-	-	-	-	-
Indonesia	X	-	X	-	X	Indonesian Institute of Petroleum (LENGAS), Jakarta and Cepu	1965	Ministry of Gas and Petroleum	-
Iraq	X	X	-	-	X	Petroleum Research Institute (PRI), Baghdad	1965	National Science Foundation	-
Iran	X	-	-	X	X	Laboratory and Center Dependent on National Iranian Oil Company, Tehran, Abadan	1959	Ministry of Petroleum	-
Kuwait	X	X	-	-	X	Kuwait Institute for Scientific Research (KISR), Kuwait	1966	Prime Minister	-
Libya	X	X	X	-	-	Libyan Institute of Petroleum (LIP), Tripoli, Tobruk	1970	Ministry of Petroleum	-
Nigeria	X	-	-	-	X	Nigerian Institute of Petroleum, Warri	1973	Ministry of Petroleum	-
Qatar	X	X	-	-	-	-	-	-	-
Syria	-	X	-	-	X	-	-	Ministry of Petroleum	-
Venezuela	X	-	-	-	X	Venezuelan Technological Institute of Petroleum (INTEVEP), Caracas	1977	Ministry of Energy and Mining	Attached to the National Company Petroleos de Venezuela

Source: Organization of Petroleum Exporting countries, Proceedings of the OPEC Seminar on "The Present and Future Role of the National Oil Companies", Vienna, October 10-12, 1977.

Note: This Table has been compiled from information at our disposal and therefore might not be complete. Furthermore, with regard to training, we have indicated only training that is specifically for the field of petroleum and for which a specific organization exists, without taking into consideration university education that may prepare for petroleum careers. The countries are listed by alphabetical order according to their names in French.

Table II-7 Breakdown of decisive technologies and know-how in the petroleum industry

Petroleum Sector	Type of Company Involved in Research and Development	Technology		Know-How	
		Main Holder	Decisive Characteristics	Control	Decisive Characteristic
<u>Geology - Geophysics</u>	C/OC	C	yes	C/OC	yes
<u>Drilling</u>					
- onshore	M	M	no	OC/C	yes
- offshore	M	M	yes	OC/C	yes
• equipment	M	M	yes	OC/C	yes
• services	C/M	C/M	yes	C	yes
<u>Field development</u>					
- onshore	M/OC	M	no	OC/C	yes
- offshore	EC/OC/I	M/EC	yes	C/OC	yes
<u>Production</u>					
- onshore	M	M	no	OC/C	yes
- offshore	M/OC	M/OC q	yes	OC/C	yes
- enhanced recovery	II/OC	M	no	OC	yes
<u>Transportation</u>					
- tankers	M	M	no	C/OC	no
- LNG carriers	EC/M	M	no	C/OC	no
- pipelines	M	M	no	C/OC	no
<u>Refining - Petrochemicals</u>					
	L/OC	EC	no	OC	yes
<u>Distribution</u>					
	OC	M	no	OC	yes

Source: M. Hiegel, "Ownership of Petroleum Technologies" (ESA/NRET/AC11/BP/3), Background paper presented at the United Nations Interregional Symposium of State Petroleum Enterprises in Developing Countries, Vienna, 7-15 March 1978.

M = Manufacturer
C = Contractor

EC = Engineering Constructor
L = Licensor

OC = International Oil Company

Table II-C Subscribed capital distribution of joint projects among OAPEC

Member States

Joint Projects	Arab Maritime Petroleum Transport Co.		Arab Shipbuilding & Repair Yard Co.		Arab Petroleum Investment Corp., 1975		Arab Petroleum Services Co., 1977		
	No. of Shares	%	U.S. \$	No. of Shares	%	U.S. \$	No. of Shares	U.S. \$	
Saudi Arabia	677,892	13.56	57,739,200	640,416.7	13.84	64,041,666.7	17,000	17 57,790,368.31	2,100 14 7,093,380
Kuwait	677,892	13.56	57,739,200	640,416.7	13.84	64,041,666.7	17,000	17 57,790,368.31	2,100 14 7,093,380
U.A.E.	677,892	13.56	57,739,200	640,416.7	13.84	64,041,666.7	17,000	17 57,790,368.31	2,100 14 7,093,380
Iraq	677,892	13.56	57,739,200	160,416.7	4.70	16,041,666.7	10,000	10 33,994,334.30	450 3 1,520,010
Qatar	677,892	13.56	57,739,200	640,416.7	13.84	64,041,666.7	10,000	10 33,994,334.30	1,500 10 5,066,700
Bahrain	249,756	5.00	24,975,600	640,416.7	13.84	64,041,666.7	3,000	3 10,198,300.29	450 3 1,520,010
Libya	677,892	13.56	57,739,200	37,500.0	1.10	3,750,000.0	15,000	15 50,991,501.45	2,550 17 8,613,390
Algeria	677,892	13.56	57,739,200	-	-	-	5,000	5 16,997,167.15	1,500 10 5,066,700
Egypt	5,000	0.10	500,000	-	-	-	3,000	3 10,198,300.29	750 5 2,533,350
Syria	-	-	-	-	-	-	3,000	3 10,198,300.29	1,500 10 5,066,700
Subscribed Capital	5,000,000	100.00	500,000,000	3,400,000.0	100.00	340,000,000.0	100,000	339,943,343.00	15,000 100 50,567,000
Authorized Capital									
	Share Value	500,000,000		Share Value	340,000,000		Share Value	1,019,830,029	Share Value
Paid Capital	= \$ 100.0	411,299,341		= \$ 100.0	270,435,713.62		= \$3399.433	169,971,671	= \$3377.80
									25,333,500

Source: Organization of Petroleum Exporting Countries, Proceedings of the OPEC Seminar on the Present and Future Role of the National Oil Companies, Vienna, October 10-12, 1977.

(1) Capital in Saudi Riyals : Exchange Rate = 3.530 Riyals = one U.S. Dollar/1976

(2) Capital in Libyan Dinars : Exchange Rate = 0.2960 Dinar = one U.S. Dollar/1976

Table III-1 Parent companies' percentage equity in major companies holding producing rights in major ECWA oil-producing countries, as at the end of 1972

Country: Operating Company	BP	CFP	Exxon	Gulf	Mobil	Royal Dutch Shell	Socal	Texaco	Govern- ment or National Companies	Other Foreign Companies
<u>Bahrain</u>										
- Bahrain National Oil Company ^{1/}	-	-	-	-	-	-	-	-	-	-
- Bahrain Petroleum Company	-	-	-	-	-	-	50	50	-	-
<u>Egypt^{2/}</u>										
- Compagnie Orientale des Petroles d'Egypte	-	-	-	-	-	-	-	-	50	50
- General Petroleum Company	-	-	-	-	-	-	-	-	100	-
- Gulf of Suez Petroleum Company	-	-	-	-	-	-	-	-	50	50
- Western Desert Petroleum Company	-	-	-	-	-	-	-	-	50	50
<u>Iraq</u>										
- Iraq National Oil Company	-	-	-	-	-	-	-	-	100	-
- Iraq Petroleum Company	23.75	23.75	11.875	-	11.875	23.75	-	-	-	5
<u>Kuwait</u>										
- Aminoil	-	-	-	-	-	-	-	-	-	100
- Arabian Oil Company Ltd.	-	-	-	-	-	-	-	-	20	80
- Kuwait National Petroleum Company	-	-	-	-	-	-	-	-	100	-
- Kuwait Oil Company	50	-	-	50	-	-	-	-	-	-
<u>Oman</u>										
- Petroleum Development Ltd.	-	10	-	-	-	85	-	-	-	5
<u>Qatar</u>										
- Bundoq Oil Company	33.33	33.33	-	-	-	-	-	-	-	33.33
- Qatar National Petroleum Corporation ^{3/}	-	-	-	-	-	-	-	-	-	-
- Qatar Petroleum Company	23.75	23.75	11.875	-	11.875	23.75	-	-	100	5
- Shell Company of Qatar	-	-	-	-	-	100	-	-	-	-

.../

(table III-1 continued)

Country: Operating Company	BP	CFP	Exxon	Gulf	Mobil	Royal Dutch Shell	Socal	Texaco	Govern- ment or National Companies	Other Foreign Companies
<u>Saudi Arabia</u>										
- Aramco	-	-	30	-	10	-	30	30	-	-
- Arabian Oil Company Ltd.	-	-	-	-	-	-	-	-	20	80
- Getty Oil	-	-	-	-	-	-	-	-	-	100
- Petromin	-	-	-	-	-	-	-	-	100	-
<u>U.A.E.</u>										
- Abu Dhabi Marine Areas	66.66	33.33	-	-	-	-	-	-	-	-
- Abu Dhabi National Oil Company	-	-	-	-	-	-	-	-	100	-
- Abu Dhabi Petroleum Company	23.75	23.75	11.875	-	11.875	23.75	-	-	-	-
- Abu Dhabi Oil Company	-	-	-	-	-	-	-	-	-	5
- Bunduq Oil Company	33.33	33.33	-	-	-	-	-	-	25	75
- Dubai Marine Areas	-	25	-	-	-	-	-	10	-	33.33
- Total Abu Al-Bukhoosh	-	51	-	-	-	-	-	-	-	65
										49

Source:

Walter Skinner's Oil and Gas International Yearbook 1977/78 (London: The Financial Times, 1977); the Economist Intelligence Unit, Quarterly Economic Review of Oil in the Middle East, Annual Supplement 1977 (London); Anthony Sampson, The Seven Sisters (London: Hodder and Stoughton, 1975); "The Oil and Gas Industry in Qatar", Arab Oil and Gas, Vol. 7, No. 151 (1 January 1978), pp.18-27.

(-.. Nil.

1/ The Bahrain National Oil Company was established in March 1976 (see "Bahrain: government nears agreement on oil takeover", Middle East Economic Digest, Vol. 22, No. 11 (17 March 1978), p.18).

2/ The state agency, Egyptian General Petroleum Authority, has full responsibility for the petroleum sector in Egypt, and it coordinates the activities through its joint ventures with the foreign companies.

3/ The name was later changed to Qatar General Petroleum Corporation through Government Decree No. 10 of 1974. (See "The Oil and Gas Industry in Qatar", Arab Oil and Gas, Vol. 7, No. 151 (1 January 1978), pp.18-27).

Table III-2 Illustrative cases of changes in relationships,
in the petroleum sector

Country	Transnational Corporation	Year	Result
<u>Algeria</u>	Getty Oil	1968	51% Sonatrach-participation.
<u>Algeria</u>	CFP/ERAP	1971	51% Sonatrach-participation. (1971: Petroleum majority Code: State participation obligatory, state company Sonatrach as holder of concession/licenses).
<u>Algeria</u>	ERAP	1975	100% state ownership, severing of relations.
<u>Algeria</u>	CFP	1975	51% state participation, renewed contract until 1980.
<u>Colombia</u>		1975	Concessions cancelled. Renegotiation into association and service contracts.
<u>Ecuador</u>	Texaco-Gulf (et al)	1973/74	25% participation by CEPE (state company).
<u>Ecuador</u>	Texaco-Gulf	1977	100% state ownership.
<u>Indonesia</u>		1974	Excess profits tax for contractors of PERTAMINA (by Statute and renegotiation).
		1976	New agreement: share of net operating income, 85% for the government and 15% for the foreign firms.
<u>Iran</u>	"Consortium" (Gulf, Mobil, Exxon, Texaco, BP, ARCO, CFP, Standard Oil of Calif. et al).	1973	Consortium agreement of 1954 abrogated. Full management and control taken over by NIOC Sales and Purchase Agreement with Consortium (5 years).
<u>Kuwait</u>	Kuwait Jil Company	1972	25% state participation.
<u>Kuwait</u>	Kuwait Oil Company	1974	60% state participation.
<u>Kuwait</u>	Kuwait Oil Company	1976	100% state ownership (retroactive from 1975).
<u>Kuwait</u>	BP/Gulf	1975	Supply contract (5 years) for transnational corporation. 100% state ownership.

(table III-2 continued)

Country	Transnational Corporation	Year	Result
<u>Libyan Arab Jamahiriya</u>	Exxon et al	1973/74	51% participation.
		1977	100% state ownership.
<u>Nigeria</u>	Shell/BP	1973	Participation schedule: 35% to 51% in 1981.
		1974	55% immediately.
		1976	60% government, 20% Shell and 20% BP.
<u>Qatar</u>	QGPC, QPC et al	1974	60% state participation.
<u>Qatar</u>	QGPC, QPC et al	1976	100% state ownership; service contract for transnational corporations.
<u>Saudi Arabia</u>	ARAMCO	1974	60% participation: long-term supply, technical assistance contract.
<u>Saudi Arabia</u>	ARAMCO	1976	60% state ownership;
<u>United Arab Emirates</u>	Abu Dhabi Oil Company	1974	60% state participation.
<u>United Arab Emirates</u>	Abu Dhabi Oil Company	1976	100% state ownership of all gas, both associated and non-associated, formalized by decree.
<u>Venezuela</u> ^{b/}		1975	Takeover of oil companies, replacement by oil sales agreements (2 years, renewable), technical assistance agreements (3 years).

Source: United Nations Centre on Transnational Corporations, based on national sources.

a/ Starting 1977, in addition to the national oil company, CEPE, a consortium was organized with 62.5 percent share by CEPE and 37.5 percent share by Texaco.

b/ Since 1975, government is trying to expand and diversify its sale of oil to new consumers independently of the foreign oil companies.

Table III-3 Parent Companies' percentage equity in companies holding producing rights in ECWA member countries as of the end of 1976

Country	Operating Company	International Majors (%)	Government or National Companies (%)	Other Foreign Companies (%)	Remarks
Bahrain	Bahrain National Oil Co. Bahrain Petroleum Co.	- 40 (Caltex)	100 60	- -	State -owned company Caltex is owned equally by Socal and Texaco.
Democratic Yemen		-	-	-	Non oil-producing country
Egypt	Compagnie Orientales des Petroles d'Egypte General Petroleum Co. Gulf of Suez Petroleum Company Western Desert Petroleum Company	- - - - - -	50 100 50 50 50	50 - 50 50	State-owned company State-owned company
Iraq	Iraq National Oil Co. Iraq Petroleum Co.	- -	100 100	- -	State-owned company Nationalized in 1975, originally owned by BP, CFP, Exxon, Mobil, Shell.
Jordan		-	-	-	Non oil-producing country
Kuwait*	American Independent Oil Company Arabian Oil Company Kuwait National Petroleum Company Kuwait Oil Company	- - - - -	- 20 100 100	100 80 - -	State-owned company Nationalized in 1975; pre- viously owned equally by BP and Gulf Oil.
Lebanon		-	-	-	Non oil-producing country
Oman	Petroleum Development (Oman) Ltd.,	38	60	2	Petroleum Development Ltd., is owned 85% by Shell and 10% by CFP; it has a 40% interest in concession in Oman

(table III-3 continued)

Country	Operating Company	International Majors (%)	Government or National Companies (%)	Other Foreign Companies (%)	Remarks
Qatar	Bundug Oil Company	67 (BP, CFP)	-	33	
	Qatar General Petroleum Corporation	-	100	-	State-owned Company
	Qatar Petroleum Company	-	100	-	
	Shell Company of Qatar ^{2/}	40 (Shell)	60	-	
Saudi Arabia [*]	Arabian American Oil Company ^{3/}	40 (Exxon, Mobil, Socal, Texaco)	60	-	
	Arabian Oil Company	-	20	80	
	Getty Oil Company	-	-	100	
	Petromin	-	100	-	State-owned company
Syrian Arab Republic	Syrian General Petroleum Company	-	100	-	The state company awards working and service contracts to other companies.
Yemen Arab Republic		-	-	-	Non oil-producing country
United Arab Emirates	Abu Dhabi Marine Areas	28 (BP, CFP)	60	12	
	Abu Dhabi National Oil Company	-	100	-	State-owned company
	Abu Dhabi Petroleum Co.	38 (BP, CFP, Exxon, Mobil, Shell)	60	2	
	Abu Dhabi Oil Company	-	25	75	
	Bundug Oil Company	67 (BP, CFP)	-	33	
	Dubai Marine Areas	35 (CFP, Texaco)	-	65	
	Dubai Petroleum Co.	-	100	-	
	Total Abu Al-Bukhoosh	51 (CFP)	-	49	

.../

(table III-3 continued)

Source:

Organization of Petroleum Exporting Countries, Statistics Unit, Annual Statistical Bulletin 1976 (Vienna 1977); Walter Skinner's Oil and Gas International Yearbook 1977/78 (London: The Financial Times, 1977); the Economist Intelligence Unit, Quarterly Economic Review of Oil in the Middle East, Annual Supplement 1977 (London); "The Oil and Gas Industry in Qatar", Arab Oil and Gas, Vol. 7, No. 151 (January 1, 1978), pp.18-27; The Barrow's Company, Middle East Basic Oil Laws and Concession Contracts, Supplement No. 56 (New York, 1978).

* Including its half-share of the partitioned neutral zone.

- 1/ Aminoil was nationalized on September 19, 1977.
- 2/ Shell Company of Qatar was nationalized on February 1977.
- 3/ Saudi Government reached agreement in principle concerning 100% takeover of Aramco. A new company called "Saudi National Petroleum Company" will replace Aramco. Takeover is retroactive to January 1976.

Table III-4 Selected international joint ventures of petroleum companies, 1972

Co-Owners	Companies and Percentage Shares					
	Arabian American Oil Company	Consortium	Iraq Petroleum Co.	Kuwait Oil Co.	Abu Dhabi Marine	Abu Dhabi Petroleum
British Petroleum	-	40	23.75	50	66 2/3	23.75
Shell	-	14	23.75	-	-	23.75
Exxon	30	7	11.875	-	-	11.875
Gulf	-	7	-	50	-	-
Mobil	10	7	11.875	-	-	-
Socal	30	7	-	-	-	11.875
Texaco	20	7	-	-	-	-
CFP	-	6	23.75	-	33 1/3	23.75
Other	-	5	5	-	-	5

Country	Saudi Arabia	Iran	Iraq	Kuwait	Abu Dhabi
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Source: Anthony J. Sampson, The Seven Sisters, Coronet Books, 1975 p. 136 (from Multinational Hearings Part 3)

Table III-5 Eight top corporations' percentage share in succession stages of the petroleum industry in the United States of America in 1970

	Domestic reserves	Crude production ^{a/}	Refining capacity	Retail gasoline sales
Exxon	9.9	9.8	8.6	7.4
Texaco	9.3	8.5	8.1	8.1
Gulf	9.0	6.8	5.8	7.1
Standard Oil of California	9.0	5.3	7.7	5.0
Standard Oil of Indiana	8.5	5.1	8.2	7.3
ARCO	7.5	5.1	5.4	5.6
Shell	5.9	6.1	8.0	7.9
Mobil	4.9	3.9	6.3	6.6
Top eight	64.0	50.5	58.1	55.0

Source: 1973 Federal Trade Commission Staff Report, pp.13-22. J.M. Flair, The Control of Oil, (New York: Pantheon Books) 1977, p. 129.

a/ 1961.

Table III-6 The eight major oil corporations' crude oil production and refining capacity in OPEC countries in 1975

Company	Crude Oil Production (000-bpd) <u>a/</u>	Capacity of Refinery (000 bpd) <u>a/</u>
British Petroleum	909	69.6
Cie. Francaise des Petroles	447	3.8
Exxon	1935	873.9
Gulf	676	168.0
Mobil	516	162.6
Shell	1303	365.3
Standard Oil of California	1274	227.4
Texaco	1407	232.0

Source: UNCTC, based on OPEC Annual Statistical Bulletin, 1975.

a/ Thousand barrels per day (bpd).

Table III-7 Percentage share of activity by ownership in developed and developing market economies outside North America 1963 - 1975

Activity	1963	1968	1972	1975
CRUDE OIL PRODUCTION				
Majors ^{a/}	82	78	73	30
Governments	9	9	12	62
Others	9	13	15	8
REFINING				
Majors ^{a/}	65	61	56	47
Governments	14	16	17	24
Others	21	23	27	29
MARKETING				
Majors ^{a/}	62	55	54	45
Governments	11	14	15	21
Others	27	31	31	34

Source: OPEC Annual Statistical Bulletin, 1975.

a/ The majors are British Petroleum, Exxon, Gulf, Mobil, Shell, Standard Oil of California and Texaco.

Table III-8 Estimated contractual access of current or former concessionaires to crude oil output of their host countries (in 000 barrels per day)

OPEC Members	1971 (Annual)				January - September 1976			
	Five		Other		Five		Other	
	Total	US Majors	US	Foreign ^{a/}	Total	US Majors	US	Foreign ^{a/}
Saudi Arabia ^{b/}	4,769	4,498	92	179	8,342	7,757	81	584
Iran ^{b/}	4,540	1,451	346	2,743	5,641	1,545	400	3,696
Kuwait ^{b/}	3,197	1,463	91	1,643	1,895	500	79	1,316
Iraq	1,694	402	-	1,292	1,999	-	-	1,999
United Arab Emirates:								
Abu Dhabi	934	136	-	798	1,575	69	-	1,506
Dubai ^{c/}	125	12	50	63	311	31	143	137
Sharjah ^{c/}	-	-	-	-	38	-	38	-
Qatar	431	53	-	378	492	18	-	474
Libyan Arab Jamahiriya	2,761	781	1,560	420	1,879	285	1,016	596
Algeria	786	-	3	783	962	-	-	962
Nigeria	1,531	359	13	1,158	2,034	534	63	1,437
Gabon ^{c/}	115	-	-	115	217	-	-	217
Indonesia	891	782	-	109	1,493	629	268	596
Venezuela	3,549	2,200	354	995	2,274	1,195	120	959
Ecuador ^{c/}	4	-	-	4	180	132	-	48
Total	25,327	12,137	2,509	10,680	29,350	12,695	2,208	14,451
Percentage shares	100.0	47.9	9.9	42.2	100.0	43.3	7.5	49.2

Source: J. Lichblau, et.al., "Vertical diversification and OPEC: a critical examination of the arguments for vertical diversification of U.S. foreign oil operations" (New York: Petroleum Industry Research Foundation, Inc., mimeo), January 1977, p.23.

Note: Five American majors: Exxon, Gulf, Mobil, Standard of California, Texaco. Where applicable, total production has been allocated proportionally to non-government concessionaires.

a/ Includes OPEC state companies.

Table III-9 Comparative table of parent companies' percentage equity in major companies holding producing rights in major ECWA oil-producing countries as at the end of 1972 & 1976

Country: Operating Company	Government or National Company		Major Companies ^{1/}		Other Foreign Companies	
	1972	1976	1972	1976	1972	1976
<u>Bahrain</u>						
- Bahrain National Oil Company ^{2/}	-	100	-	-	-	-
- Bahrain Petroleum Company ^{3/}	-	60	100	40	-	-
<u>Egypt</u>						
- Compagnie Orientale des Petroles d'Egypte ^{4/}	50	50	-	-	50	50
- General Petroleum Company ^{5/}	100	100	-	-	-	-
- Gulf of Suez Petroleum Company ^{6/}	50	50	-	-	50	50
- Western Desert Petroleum Company ^{7/}	50	50	-	-	50	50
<u>Iraq</u>						
- Iraq National Oil Company ^{8/}	100	100	-	-	-	-
- Iraq Petroleum Company ^{9/}	-	100	95	-	5	-
<u>Kuwait</u>						
- Aminoil ^{10/}	-	-	-	-	100	100
- Arabian Oil Company Ltd. ^{11/}	20	20	-	-	80	80
- Kuwait National Petroleum Company ^{12/}	100	100	-	-	-	-
- Kuwait Oil Company ^{13/}	-	100	100	-	-	-
<u>Oman</u>						
- Petroleum Development Ltd. ^{14/}	-	60	95	38	5	2
<u>Qatar</u>						
- Bunduq Oil Company ^{15/}	-	-	66.66	66.66	33.33	33.33
- Qatar General Petroleum Company ^{16/}	100	100	-	-	-	-
- Qatar Petroleum Company ^{17/}	-	100	95	-	5	-
- Shell Company of Qatar ^{18/}	-	60	100	40	-	-
<u>Saudi Arabia</u>						
- Aramco ^{19/}	-	60	100	40	-	-
- Arabian Oil Company Ltd. ^{11/}	20	20	-	-	80	80
- Getty Oil ^{20/}	-	-	-	-	100	100
- Petromin ^{21/}	100	100	-	-	-	-
<u>U.A.E.^{22/}</u>						
- Abu Dhabi Marine Areas ^{23/}	-	60	100	27.985	-	12.015
- Abu Dhabi National Oil Company ^{24/}	100	100	-	-	-	-
- Abu Dhabi Petroleum Company ^{25/}	-	60	95	38	5	2
- Abu Dhabi Oil Company	25	25	-	-	75	75
- Bunduq Oil Company ^{15/}	-	-	66.66	66.66	33.33	33.33
- Dubai Marine Areas ^{26/}	-	-	35	35	65	65
- Total Abu Al-Bukhoosh ^{27/}	-	-	51	51	49	49

Source: Organization of Petroleum Exporting Countries, Statistics Unit, Annual Statistical Bulletin 1976 (Vienna, 1977); Walter Skinner's Oil and Gas International Yearbook 1977/78 (London: The Financial Times, 1977); The Economist Intelligence Unit, Quarterly Economic Review of Oil in the Middle East, Annual Supplement 1977 (London); Anthony Sampson, The Seven Sisters (London: Hodder and Stoughton, 1975); "The Oil and Gas Industry in Qatar", Arab Oil and Gas, Vol. 7, No. 151 (1 January 1978), pp.18-27.

.../

has been allocated proportionally to non-government concessionaires.
includes OPEC state companies.

(table III-9 continued)

(-): Nil.

- 1/ The major companies are: British Petroleum Company Ltd., (BP); Cie Francaise des Petroles (CFP); Exxon Corporation; Gulf Oil Corporation; Mobil Oil Corporation; Royal Dutch/Shell Group of Companies; Standard Oil Company of California (Socal); Texaco Incorporated.
- 2/ Bahrain National Oil Company was established in March 1976.
- 3/ Bahrain Petroleum Company (Bapco) is a 100% Caltex subsidiary (50% Socal; 50% Texaco). In 1974 an agreement was concluded (effective January 1, 1974) as a result of which the Bahraini Government took 60% of Bapco's production and exploration rights excluding other assets. In March and April 1978, negotiations were being held for a 100% Government takeover of Bapco's production and exploration rights (including gas production) and local marketing of refined products. (See: "Bahrain: Government nears agreement on oil takeover", Middle East Economic Digest, Vol. 22, No. 11, 17 March 1978, p.18).
- 4/ Owned by Ente Nazionale Idrocarburi (Italian national oil company) and Egyptian General Petroleum Authority (each 50%).
- 5/ General Petroleum Company is 100% owned by Egyptian General Petroleum Authority (EGPA).
- 6/ Owned by Amoco, a subsidiary of Standard Oil of Indiana, and EGPA (each 50%).
- 7/ Owned by Phillips Petroleum Company and EGPA (each 50%).
- 8/ Iraq National Oil Company was incorporated on February 8, 1964.
- 9/ Between 1972 and 1975, the three companies owned by Iraq Petroleum Company (Iraq Petroleum Company, Basrah Petroleum Company, Mosul Petroleum Company) were nationalized. Iraq Petroleum Company was originally owned by British Petroleum, Cie Francaise des Petroles, Royal Dutch/Shell (each 23.75%), Exxon and Mobil (each 11.875%) and Partex (5%).
- 10/ Aminoil was nationalized on September 19, 1977 (see: The Barrows Company, Middle East Basic Oil Laws and Concession Contracts, Supplement No. 56 (New York, 1978), pp.17-18). Capital was previously held by subsidiaries of R.J. Reynolds Industries Incorporated.
- 11/ Arabian Oil Company is owned 30% by a consortium of Japanese Firms.
- 12/ Kuwait National Petroleum Company was incorporated on October 3, 1960.
- 13/ Effective January 1 of 1974, the Kuwaiti Government assumed a 60% interest in Kuwait Oil Company (KOC), and in 1975 it acquired the remaining 40%. KOC was originally owned by BP (50%) and Gulf (50%).
- 14/ Petroleum Development Ltd. is owned by Royal Dutch/Shell (85%), Cie Francaise des Petroles (10%) and Partex Corporation (5%). In 1974 the Omani Government took 60% interest in the concession of Petroleum Development in Oman.
- 15/ Bunduq Oil Company is owned equally by BP, CFP and United Petroleum Development (a group of Japanese firms). BP and CFP are reported to be negotiating the sale of their 2/3 interest in the company to Godo Sekiyo of Japan (see Middle East Economic Survey, Vol. 21, No. 31 (22 May 1978), p.10). Production from Bunduq Field is divided equally between Abu Dhabi and Qatar.
- 16/ Through Government Decree No. 10 of 1974, Qatar National Petroleum Corporation (established in 1972) was changed to Qatar General Petroleum Corporation.

.../

(table III-9 continued)

- 17/ Since January 1973, the Government of Qatar extended gradually its participation interest in Qatar Petroleum Company, and in 1976 an agreement was concluded through which all the Company's assets and operations in crude oil and NGL were transferred to the Government as of July 1, 1976. Qatar Petroleum Company was originally owned by BCFP and Royal Dutch/Shell (each 23.75%), Exxon and Mobil (each 11.875%), and Partex Corporation (5%).
- 18/ The Company was nationalized on February 1977 (see "The Oil and Gas Industry in Qatar", Arab Oil and Gas, Vol. 7, No. 151, 1 January 1978, p.13).
- 19/ Effective January 1, 1974 the Saudi Government increased its interest in crude oil concessions and producing assets of Aramco from 25% (which it had acquired in 1973) to 60%. In 1976, the Saudi Government and the other owners of Aramco reached basic agreement concerning the Government takeover of 100% of Aramco's producing and refining assets and operations (excluding unknown interest in gas processing facilities to be acquired at a later date); the agreement will be retroactive to January 1, 1976. The original owners of Aramco were Exxon, Socal, Texaco (each 30%) and Mobil (10%).
- 20/ It's a privately owned American company.
- 21/ National Company, established on November 30, 1962.
- 22/ United Arab Emirates consists of seven Emirates: Abu Dhabi, Ajman, Dubai, Fujairah, Ras Al-Khaimah, Sharjah, Umm Al-Quwain; Abu Dhabi and Dubai are the major oil-exporting Emirates.
- 23/ Effective January 1 of 1974, the Abu Dhabi National Oil Company (ADNOC) acquired a 60% ownership in Abu Dhabi Marine Areas. The original owners were BP (2/3) and CFP (1/3).
- 24/ National Company, established in 1971.
- 25/ Abu Dhabi National Oil Company acquired a 25% interest in Abu Dhabi Petroleum Company in 1973 and increased it in 1974 to 60%. Abu Dhabi Petroleum Company was originally owned by BP, CFP and Royal Dutch/Shell (each 23.75%) and Exxon and Mobil (each 11.875%) and Partex Corporation (5%).
- 26/ Dubai Marine Areas is owned 25% by each of CFP and Hispanoil (Spanish national oil company), 30% by Dubai Petroleum Company (subsidiary of Continental Oil), 10% by Deutsche Texaco A.G., 5% by each of Wintershall and Sun Oil. A complete takeover by the state is reported to have been effected (see: The Economist Intelligence Unit, Quarterly Economic Review of Oil in the Middle East, Annual Supplement 1977, p.15).
- 27/ It is owned 51% by Cie Francaise des Petroles.

Table III-10 Ownership percentage of refinery capacity in ECWA member countries, 1971, 1977

Country	International Majors (%)	Government or National Companies (%)	Other Foreign Companies (%)	Total Capacity ('000 b/d)	Remarks
Bahrain					
1972-77	100 (Caltex)	-	-	250	Caltex is owned equally by Texaco and Socal.
1971	100 (Caltex)	-	-	205	
Democratic Yemen					
1977	-	100	-	169	BP assets were nationalized effective May 1, 1977.
1971-76	100 (BP)	-	-	173-169	
Egypt					
1977	25 (Caltex)	75	-	234	Estimated ownership wide range due to war damage.
1971-76	N.A.	N.A.	-	99-210	
Iraq					
1972-77	-	100	-	134	2% share - (BP, CFP, Exxon, Mobil, Shell).
1971	2	98	Negligible	116	
Jordan					
1971-77	-	100	-	14-19	The Government owns 50%.
*Kuwait ^{1/}					
1977	-	100	-	632(est.)	Includes Aminoil (1977). Ownership in 1976 only.
1974-76	19	76	24	542-609	
1973	53	28	19	542	
1971-72	58	19	22	437-484	
Lebanon					
1973-77	32	68	-	53	There are no refineries in Oman.
1971-73	97	-	3	47-53	
Oman					
1971-77	-	-	-	-	
					.../

(table III-10 continued)

Country	International Majors (%)	Government or National Companies (%)	Other Foreign Companies (%)	Total Capacity ('000 b/d)	Remarks
Qatar 1971-77	-	100	-	1-8	The only refinery in Qatar is owned by the State-Company. Capacity was expanded in 1975.
*Saudi Arabia ^{2/} 1975-77	80	10	10	703	
1971-74	87	3	10	676	
Syrian Arab Republic 1971-77	-	100	-	50-117	
Yemen Arab Republic 1971-77	-	-	-	-	There are no refineries in Yemen Arab Republic
United Arab Emirates 1976-77	-	15	-	15	The Abu Dhabi refinery started operating in 1976; there were no refineries before.
1971-75	-	-	-	-	

Source: Organization of Petroleum Exporting Countries, Statistics Unit, Annual Statistical Bulletin 1976 (Vienna 1977); The Economist Intelligence Unit, Quarterly Economic Review of Oil in the Middle East, Annual Supplement 1977 (London); Orient Press Agency, FMA: Arab World File 'Beirut 1974-1977 files': International Petroleum Encyclopedia 1977, John C. Moslin, ed. (Tulsa, Oklahoma: The Petroleum Publishing Company, 1977).

* Including its half-share of the partitioned neutral zone.

1/ Following nationalization of Aminoil in 1977, most of Kuwait refinery capacity has become under Government control.

2/ Following takeover of Aramco in 1979 most of Saudi Arabian refinery capacity is now under Government control.

Table III-11 ECMA-1/ refineries by location and refinery crude throughput as at the end of 1977
(in barrels per day)

Country	Company and refinery location	Crude	Catalytic cracking	Thermal cracking	Catalytic reforming	Hydro-processing	Other processing
Bahrain	Bahrain Petroleum Co. Ltd.						
	Awali	250,000	34,200	19,000 VB	15,200	15,200 HDT 71,000 HDS	144,000V, 1,300 P, 3,000A
	Total	250,000	34,200	19,000	15,200	86,200	
Egypt	Alexandria Petroleum Co.						400A
	Alexandria	60,000					
	El-Nasr Petroleum Co.						8,600V, 800L, 2,600A
	Alexandria	50,000					2,800 V, 1,460 A
	Suez	17,000					
	Suez Process Petroleum Co.						
	Mostord	74,000			7,000		
	Suez	18,000					
	Tanta	15,000					6,000 V, 600 L
	Total	234,000			7,000		
Iraq	Oil Refineries Administration:						
	Basra	70,000					
	Daura	71,000					
	K3-Haditha	7,000			5,000	13,000 HDT	3,160 L, 1,815 A
	Khanaqin	12,000					
	Muthia	4,500					
	Qaiyarah, Mosul	2,000					920A
	Iraqi Company for Oil Operation, Kirkuk	2,000					
	Total	168,500			5,000	13,000	
Jordan	Jordan Petroleum Refinery Co. Ltd., Zarka						
		29,580	4,410 F		870	2,000 HDT	6,610 V, 300 L, 1,220 A
	Total	29,580	4,410 F		870	2,000	...

(table III-11 continued)

Country	Company and refinery location	Crude	Catalytic cracking	Thermal cracking	Catalytic reforming	Hydro-processing	Other processing
Kuwait ^{2/}	American Independent Oil Co.,						
	Mena Abulla	132,000				32,000 HDS	112,000 V
	Arabian Oil Co. Ltd. (Japan),						
	Ras Al Khafji	30,000					
	Getty Oil Co.	50,000					
	Mina Saud						
	Kuwait National Petroleum Co.,						
	Shuaiba	200,000			16,000	103,900 HDT 44,000 DHC 56,000 RHC	100,000 V
	Kuwait Oil Co.,						
	Mina Al-Akhdji	300,000			5,600		1,500 A
Lebanon:	Total	712,000			21,600	235,900	
	Iraq Petroleum Co. Ltd.,						
	Tripoli	36,000	7,250 F		4,400	5,730 HDT	12,730 V, 900A
	Mediterranean Refining Co.						
	Sidon	17,000			2,900	2,900 HDT	
Qatar	Total	53,000	7,250		7,300	9,630	
	National Oil Distribution Co.,						
	Umm Said	9,800			1,235	3,500 HDT	
	Arabian American Oil Co.,						
	Ras Tanura	500,000			36,000	22,500 HDS	100,000 V, 13,000A
Saudi Arabia	Jeddah Oil Refinery Co.,						
	Jeddah	70,000	9,500F	3,100 VB	2,900	2,900 HDT 8,500 HDS	18,000 V, 7,200A
	Riyadh Oil Refinery						
	Riyadh	16,093			4,375	5,560 DHC 2,306 HDT	7,000 V, 3,000A
	Total	586,093	9,500	3,100	43,775	41,766	

(table III-11 continued)

Country	Company and refinery location	Crude	Catalytic cracking	Catalytic reforming	Hydro-processing	Other processing
Syria	Homs Refinery Co. Homs	102,440		2,620	26,040 HDS	3,110 V, 1,920 A, 685 C
Democratic Yemen	Yemen Government, Little Aden	142,857		0,524		
United Arab Emirates Abu Dhabi	Abu Dhabi National Oil Co., Umm Al-Nar	15,000		2,900	5,300 HDT	
Total ECWA		2,303,270				

Source: "Worldwide Refining", Oil and Gas Journal, 26 December 1977, pp. 146-190.

Abbreviations used with the refining tabulations
(All figures in barrels per calendar day).

All figures are as of
1/1/ 1973

Catalytic cracking:		Hydroprocessing:		Other processing:	
F- Fluid cat cracking		DEC- Distillate Hydrocracking		A- Asphalt	
T- Thermofor cat cracking		FHC- Residual Hydrocracking		Alky- Alkylation	
HD- Houdrifiow cat cracking		HDT- Catalytic hydrotreating		AI- Aromatics/	
Thermal cracking:		HDS- Catalytic Hydrodesulfuri-		Isomerization	
		zation			

VB- Visbreaking

C- Coking (t/d)

AP-Visiting.

The figures reported in this survey are refiners' averages for how many barrels each day a refinery unit yields Calendar Day Figures including downtime used for turnarounds. These figures are what refiners actually run in a year by 365. Stream day figures represent the potential a refinery unit can yield when running full capacity).

- 1/ Two ECWA countries, Oman and Yemen Arab Republic, have no refineries.
- 2/ OPEC statistical sources include Ras al-Khafji and Mina Saud refineries in Saudi Arabia.

Table IV-1 World oil production and refining capacity
(in thousands of barrels per day)

COUNTRIES	1972			1974			1976		
	Production	Refining	%R/P	Production	Refining	%R/P	Production	Refining	% R/P
OAPEC									
Saudi Arabia	6016	655.0	11.00	8480	576.0	9.00	8577	705	8.00
Iraq	1465	1116.0	8.00	1971	134.0	9.30	2466	221	9.00
Kuwait	3293	425.0	14.70	2546	542.0	21.30	2145	644	30.00
Libya	2239	10.0	0.45	1521	70.0	4.60	1933	77	4.00
U.A.E.	1203	-	-	1680	-	-	1947	15	0.30
Algeria	1062	1116.0	11.00	1009	116.0	11.50	1015	120	12.00
Qatar	482	0.7	0.15	513	0.7	0.14	497	9	2.00
Egypt	203	166.0	82.00	142	166.0	117.00	315	205	65.00
Syria	164	51.0	31.00	123	50.0	40.50	192	35	44.30
Bahrain	70	250.0	357.00	67	250.0	371.00	50	250	434.30
TOTAL OAPEC	16193	1052.0	11.40	10965	2054.0	11.40	19145	2261	11.80
REST OF OPEC COUNTRIES									
Iran	6022	620.0	10.30	5023	705.0	14.00	5975	701	13.30
Venezuela	3220	1474.0	45.00	2976	1474.0	49.50	2290	1451	63.40
Nigeria	1016	60.0	3.30	2255	60.0	2.70	2020	57	2.80
Indonesia	1031	425.0	39.30	1375	425.0	31.00	1500	423	23.50
Ecuador	177	35.5	20.00	73	44.0	56.40	135	44	23.80
Gabon	125	17.0	13.60	202	17.0	8.40	220	20	9.10
TOTAL OPEC	23625	4493.5	15.70	30729	4313.0	14.00	30670	4572	14.90
TOTAL WORLD	50021	49339.0	97.00	55913	56317.0	100.70	57395	75400	131.40
OAPEC % Share of Total World	31.9%	3.0%	-	32.3%	3.5%	-	33.3%	3.0%	-
OPEC % Share of Total World	56.3%	9.1%	-	55.0%	7.7%	-	53.4%	6.4%	-

.../

(table IV-1 continued)

OPEC COUNTRIES	1972			1974			1976		
	Production	Refining	% RP	Production	Refining	% R/P	Production	Refining	% R/P
TOTAL WORLD*	41935.6	23905.6	71.50	45147	33350.0	96.00	44950.5	61727	136.00
OPEC % Share	38.7%	6.0%	-	40.0%	5.3%	-	42.7%	3.7%	-
OPEC % Share	63.0%	15.0%	-	63.0%	11.0%	-	63.3%	7.4%	-

Reference: OPEC Annual Statistical Bulletin 1975.
 Twentieth Century Petroleum Statistics 1975.
 Petroleum Encyclopedia

* Excluding USSR, Eastern Europe and China.

Table IV-2 Arab States refineries planned or under construction

Country	Company and Location	Project	Capacity (b/d)	Remarks and completion
Abu Dhabi	Abu Dhabi National Oil Co., - Ruwais New ref.	Cat reform	120,000	Eng: IFP. Con: Snam Progetti. 1991.
		Cat HDT	14,000	
		Cat HDS	30,000	
		New refinery	55,000	Under const. Maraco Eng. \$650 M.
Algeria	Sonatrach - Bejaia	New refinery	180,000	
		Cat reform	30,000	\$200 MM. Procon GB. and Technipetrol. 1980.
		Cat HDT	30,000	
		Crude	20,000	Hydrocarbon Eng. 1979.
	Hassi Messaoud	Cat reform	2,000	Hydrocarbon Eng. 1979.
		New refinery	360,000	Hydrocarbon Eng. 1979.
		Cat reform	30,000	Snam Progetti. 1979.
		Cat HDS	30,000	
		Asphalt	2,000	
		Skikda		
Bahrain	Bahrain Petroleum Co. Ltd., Awali	Asphalt	3,400	5,500 total cap. 1979.
		New refinery	200,000	1981.
Dubai	Jebel Ali			
Egypt	Suez Oil Processing Co. Mostora	Cat HDS	2,100	
		New refinery	250,000	Proposed.
Iraq	Seorgi - State Establishment for Oil & Gas	Crude-1	10,000	Howe-Baker. 1979.
		Kerotreat	1,650	Howe-Baker. 1979.
		Naph treat	1,500	Howe-Baker. 1979.
		Crude-2	10,000	Howe-Baker. 1979.
		Kerotreat	1,650	Howe-Baker. 1979.
		Naph treat	1,500	Howe-Baker. 1979.
	Iraq Petroleum Co., Daura	Lube Oil	1,200	Milgata and Marubeni. 1973.

(table IV-2 continued)

Country	Company and location	Project	Capacity (b/d)	Remarks and completion
Iraq (continued)	Basrah	Ref. expansion	70,000	140,000 b/d total capacity. Technoexport. 1979.
		Lube Oil	2,000	Sumpliogetti \$145M. Early 1980.
	Baiji	New refinery	150,000	UOP design.
Jordan	Jordan Petroleum Refinery Co. Ltd., - Zarka	Crude	54,876	Industrialexport over all. March 1979.
		Vacuum	6,610	Procon GB. July 1979.
		Unibon	4,230	Procon GB. July 1979.
		Platformer	8,540	Procon GB. March 1979.
		Cat HDT	11,060	March 1979.
		Isom-Penex	1,000	Early 1980.
		Hydrogen	7.9 Mscfd	July 1979.
		LPG	74 mt/y	Procon GB. March 1979.
		Mercox Treater	11,005	July 1979.
		Asphalt	400 t/d	Staff. 1979.
Libyan Arab Jareheriya	Tobruk refinery. National Oil Co.,	Crude	220,000	Expan. 1979.
		Crude	150	Enz. stage Howe-Baker, Protech, 1979.
Morocco	Societe Cherifienne des Petroles - Sidi Kacem Sakhir OCP & Abu Dhabi National Oil Co. Jorf Lasfah	Refinery expan.		Foster Wheeler Francoise. 1979.
		Expansion	80,000	Procon. December 1979.
		New refinery	150,000	

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(table IV-2 continued)

Country	Company and location	Project	Capacity (b/d)	Remarks and completion
Qatar	National Oil Distribution Co., Umm Said	Crude	11,200	20,900 total capacity.
		Atm dist	800	1,600 total capacity.
		Cat reform	1,620	3,040 total capacity.
		Cat HDT	3,250	6,100 total capacity.
		Gas	9,167	Eng. stage. Kellogg International \$300 MM. December 1980 on all unit.
Saudi Arabia	Arabian American Oil Co., Ras Tarura Jeddah Oil Refinery Jeddah	Jet fuel	6,667	
		Diesel	10,000	
		Fuel oil	12,500	
		Cat reform	25,000	32,500 total capacity. Mid 1979.
		Crude dist	170,000	Chiyoda over all. 1980 on all units.
		Platformer	35,000	
		Crude expan	70,000	240,000 total capacity.
		Unibon	35,000	
		Hycrack	15,200	
		Crude dist	100,000	Chiyoda over all. 1980.
		Asphalt	10,000	
		Hydrogen	65,4 MMcf/d	
		Platformer	30,000	
		Crude expan	20,000	120,000 total capacity.
		Unibon	27,000	
Saudi Arabia	Petromin - Riyadh	Unibon HDC	14,500	
		Unibon HCD	27,500	
		New refinery	120,000	Mid 1982.
		Lube	12,000	
		Naph dist	63,000	
Saudi Arabia	Petromin, Chevron, Texaco - Jubail	Resid	43,000	
		New refinery	250,000	Planned.
		New refinery	250,000	Designing 1981.
		Crude	100,000	Design: UOP
				...

(table IV-2 continued)

Country	Company and location	Project	Capacity (b/d)	Remarks and completion
Saudi Arabia (cont.)		Asphalt	9,000	Contractor: Chiyoda 1980 on all units.
		Vac	37,300	
		HDC	27,500	
		Cat reform	30,000	
		Naph HDT	21,000	
		Kero HDS	14,500	
Somalia	Government and Iraq	New refinery	10,000	Ingeco, Milan
Sudan	Government and Triad Naft Co. Ltd., Port Sudan	New refinery	250,000	
Tunisia	Government - Gabes	New refinery	150,000	

Source: The Oil and Gas Journal October 2, 1978, pp. 128-148

Table IV-3 Arab States gas processing activities planned or under construction

ABU DHABI

Abu Dhabi Gas Liqu Co. Bu Rasa, Asab, Bab Ruwais. 913 MMcfd. 2,880 mt/d propane, 4,320 mt/d butane, 6,480 mt/d condensate. Refrigeration and turboexpander process. Engineering stage. Contractor: Bechtel and Fluor. \$ 1,500 MM. Completion: September 1980.

Habshan. 100 MMscfd catacrab desulfurization unit. Detailed design. Integral Eng. Completion: 1979.

ALGERIA

Sonatrach. Alrar. 600 MMcfd plant. \$300 MM. Contractor: Fluor. Completion: Late 1981.

Arzaw. 1 billion cfd LNG plant, 300,000 mt/y butane, 350,000 mt/y propane under construction. Contractor: Kellogg.

Bethlous. 1,760.0 MMcfd LNG, 580,000 t/y propane, 450,000 t/y butane. Status: Engineering stage. Contractor: Foster, Wheeler. Completion: 1980.

Nasal R'Mol, 20 billion cm/y gas processing units. Egnineering stage. Contractor: J.F. Pritchard. Completion: 1978.

880 mt/y LPG and 4.0 MMt/y condensate units under construction. Contractor: JGC Corp. Completion: 1980.

1,760 mt/y LPG and 8.0 mt/y condensate units under construction. Contractor: JGC Corp. Completion: 1979.

Skikds. 346 MMscfd LNG plant under construction. Contractor: Kellogg.

BAHRAIN

Bahrain National Oil Co., 155 mt/y LPG, 125 mt/y naphtha, 85 MMcfd resid gas in engineering stage, \$72 MM. Contractor: JGC Corp. Completion 1979.

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(table IV-3 continued)

QATAR

Qatar Gas Co. Umm Said. 600,000 t/y LP-gas and 300,000 t/y natural gasoline under construction. \$70 MM. Contractors: Mitsubishi and Chiyoda. Completion: 1980.

8,000 t/d natural gas liquids plant under construction. Contractor: Comprim BV.

SAUDI ARABIA

Aramco. Ju'aymah. 270,000 b/cd. 4,650 MMscfd ethane; 3,790 g/d propane, 1,610 g/d butane, 1,290 g/d natural gasoline. Under construction. Contractor: Fluor.

Shedgum. 1,470 MMcfd. 650 MMscfd sales gas. 11,700 g/d natural gas liquids mix. Under construction. Contractor: Fluor. Completion: 1980.

Uthmaniyah. 1,430 MMcfd. 640 MMscfd sales gas, 11,500 g/d natural gas liquids mix. Under construction. Contractor: Fluor.

Yanbu. 270,000 b/cd. 4,650 MMscfd ethane, 3,790 g/d propane, 1,610 g/d butane, 1,290 g/d natural gasoline. Status: Planning stage.

IRAQ

Zubair. 200,000 t/y LP-gas plant. Contractor: Ingoco, Milan. Completion: 1978.

KUWAIT

Kuwait Oil Co., Shuaiba. 1,680 MMcfd plant. 4,279,380 g/d propane, 2,269,620 g/d unsplit butane, 1,784,530 g/d natural gasoline (C.). Oil absorption-refrigeration process. Under construction. Contractor: Kellogg International. Completion: October 1979. Plant comprises three identical trains.

Source: The Oil and Gas Journal. October 2, 1978, pp.174-179.

Table IV-4 Arab States sulfur plant construction

QATAR

NODCO. Umm Said. 20 t/d unit (from refinery gases).

Completion: 1982.

SAUDI ARABIA

Aramco. Shadgum. 1,540 t/d unit under construction.

Contractor: Fluor.

Uthmaniya 1,100 t/d unit under construction. Contractor:
Fluor.

Source: The Oil and Gas Journal. October 2, 1973, pp. 171-172.

Table IV-5 Arab States petrochemical projects - planned or
under construction

ALGERIA

Sonatrach

Sonatrach and International Synthetic Rubber Co. Skikda. 300,000 t/y butadiene plant. Fluor on engineering and feasibility.

EGYPT

Egyptian General Petroleum and Mont-Edison 75-25%. Alexandria. 80,000 mt/y polyvinyl chloride, 90,000 mt/y ld polyethylene, 50,000 t/y hd polyethylene feed: ethylene.

Cairo - Mostorod. 40,000 mt/d paraxylene unit planned.

Semadco. Talkha. 1,200 mt/d anhydrous ammonia unit. ICI process. Contractor: Foster Wheeler Italiana. Completion: 1979.

1,700 mt/d urea expansion. Lic: Stamicarbon. Contractor: Foster Wheeler, Italiana. Completion: 1979.

IRAQ

Basrah. 700,000 t/y petrochemical complex: polyvinyl chloride 150,000 mt/y hd and ld polyethylene, polypropylene, styrene, polyester, acrylic, benzene, toluene, polystyrene under construction. \$1 billion. Contractors: Lummus, Thyssen Rheinstahl. Completion: 1981.

Khor Al-Zubair. 2,000 mt/d ammonia, 3,200 mt/d urea units under construction. Contractor: Mitsubishi Heavy Ind. Completion: 1979.

JORDAN

Jordan Fertilizer Industries. Akaba. Two 1,800 t/d urea units in engineering stage by Heurtey. Completion: 1980.

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(table IV-5 continued)

KUWAIT

Kuwait Melamine Industries. Melamine plant under construction. Contractor: Eurotecnica. Completion: 1978.

Petrochemical Industries Co. Shuaiba. 350,000 mt/y ethylene, 130,000 mt/y ld polyethylene, 130,000 mt/y monoethylene glycol, 330,000 mt/y styrene monomer units planned. Feed: ethane. Completion: 1984.

234,000 mt/y benzene, 37,000 mt/y paraxylene, 60,000 mt/y orthoxylene units planned. Feed: naphtha. Completion: 1984.

330,000 mt/y ammonia unit planned. Feed: natural gas. Completion: 1984.

LIBYA

General National Organization for Industrialization. Abu Kammash. Petrochemical complex including:

62,500 mt/y vinyl chloride monomer unit under construction. Lic: Goodrich-Hoechst. Eng: Uhde. Contractor: Salzgitter. Completion: 1980.

60,000 mt/y polyvinyl chloride unit under construction. Lic: C.W. Huls. Eng: KHD-Pritchard. Contractor: Salzgitter. Completion: 1980.

Marsa el Brega. 400,000 t/y ethylene plant. Contractor: Stone & Webster, Completion: 1973.

National Oil Corp. of the Libyan Arab Jamahiriya. Tobruk. 330,000 mt/y ethylene unit under construction. Contractor: Stone & Webster. Completion: 1979.

National Oil Corp. Marsa El Brega. 1,000 t/d urea unit. \$70 MM. Contractor: Foster Wheeler Italiana. Completion: 1980.

1,000 t/d ammonia unit. Haldor Topsoe process. \$150 MM. Contractor: Snamprogetti. Completion: February 1981.

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(table IV-5 continued)

OMAN

Government. 2,000 t/d ammonia plant.

QATAR

Qatar Fertilizer. Umm Said. 900 mt/d ammonia expansion under construction. Feed: natural gas. Eng: Norsk Hydro. Contractor: Davy Powergas. \$9M. Completion: Late 1978.

1,000 mt/d urea expansion under construction. Eng: Norsk Hydro. Contractor: Chiyoda. Completion: Late 1978.

Qatar Petrochemical Co. Umm Said. 140,000 mt/y 1d polyethylene under construction. Feed: ethane. \$100 MM. Cdf Chimie process. Contractor: Coppee-Rust. Completion: 1980.

280,000 mt/y ethylene under construction. Feed: ethane. \$200 MM. Contractor: Technip. Completion: 1980.

SAUDI ARABIA

Saudi Basic Industries Corp. with Celanese and Texas Eastern. Jubail. 2,000 st/d methanol, 1,000 mt/d ammonia, 1,600 mt/d urea units planned. Feed: methane. Completion: 1983.

SBIC with Dow. Jubail. 400,000 mt/y ethylene, 200,000 mt/y 1d polyethylene, 300,000 mt/y ethylene glycol units planned. Feed: ethane. Completion: 1983.

SBIC with Exxon. Jubail. 240,000 mt/y 1d polyethylene unit planned. Feed: ethylene. Completion: 1982.

SBIC with Japanese Consortium. Jubail. 2,000 st/d methanol unit planned. Feed: methane. Completion: 1982.

SBIC with Mobil. Yanbu. 450,000 mt/y ethylene, 200,000 mt/y 1d polyethylene, 200,000 mt/y ethylene glycol, 320,000 mt/y styrene units planned. Feed: ethane. Completion 1983.

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(table IV-5 continued)

SAUDI ARABIA (Cont'd)

SBIC with Pecten. Jubail. 655,000 mt/y ethylene, 295,000 mt/y styrene, 454,000 mt/y ethylene dichloride, 281,000 mt/y ethanol, 355,000 caustic soda units planned. Feed: ethane. Completion: 1982.

SUDAN

N-REN Corp. Khartoum. 175 mt/d ammonia unit under construction.
Feed: naphtha.

SYRIA

Unichem. Homs. 1,000 mt/d ammonia unit, 1,050 t/d urea unit under construction. Eng: Kellogg. Contractors: Creusot-Loire and Heurtey.
Completion: 1979.

Source: The Oil and Gas Journal. October 2, 1978, pp. 150-171.

Table IV-6 Arab States pipelining construction

ALGERIA

Sonatrach. 312 miles, 3 through 44 in. natural gas network at Rhourde Nouss. Contractor: Canadian Bechtel Ltd. Completion: December 1981.

56 miles, 36 in. gas lines at Hassi R'Mel. Contractor: Bechtel Inc. Completion: December 1973.

250 miles, 34 in. crude line from Haoud El Amra to Biskra. Contractor: Saipem and Snamprogetti. Completion: February 1979.

62 miles, 10 in. and 62 miles, 6 in. products line from Skikda to Constantina. Contractor: Snam Progetti-Saipem. Completion: April 1979.

396 miles, 34 in. crude line from Haoud-El Hamra to Skikda. Phase 2 and 3. Contractors: Snamprogetti and Saipem. Completion: 1979.

315 miles, 40 in. gas line from Hassi R'Mel to Arzew 40 in. No. 2 Phase. Completion: late 1979.

315 miles, 40 in. gas line from Hassi R'Mel to Arzew 42 in. Contractor: Sedco. Completion: 1980.

283 miles, 42 in. gas line Center 42 in. Completion: December 1979.

200 miles, 40 in. gas line from Hassi R'Mel to the Mediterranean. Contractors: Nacap.

Transmediterranean Pipelines. 1,550 mile gas line from Algeria through Tunisia across Mediterranean to Italy. \$3 billion. Agreement signed.

DUBAI

Shell Marketing. 7 miles, 18-16-14 in. products line in Port Rashid. Contractor: Costain Process Eng. Completion: June 1979.

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(table IV-6 continued)

LIBYA

National Libyan Oil Co. 250 miles, 18 in. crude line from Al Hamra to Azzanya.
Eng. design: Protech. \$160 MM. Completion: 1979.

SAUDI ARABIA

Aramco. 330 miles, 30 in.; 332 miles, 28 in.; 65 miles, 26 in. natural gas liquids lines from Shedgum to Yanbu. Eng. and procurement to be completed December 1978 by Bechtel Inc.

364 miles, 12 through 40 in. gas and natural gas liquids net work in Eastern province. Contractor: Bechtel Inc., Completion: Mid 1979.

Petromin. (Representative: Mobil Overseas Pipeline). 747 miles, 48 in. crude line from Abqaiq to Yanbu. Eng. design: Brown & Root. Contractors: Saipem, Sedco, and Contracting and Trading. Completion: 1981.

Source: The Oil and Gas Journal. October 2, 1978, pp.179-194

(Attachment IV-7 continued)

Notification requirements

Names and addresses are provided for sending formal notifications required by the agreement (e.g., termination or royalty reports).

OBLIGATIONS OF LICENSOR

Recitals or "whereas" clauses

The recitals generally state that the licensor owns the required patents and manufactures by the desired process and that the licensee wishes to manufacture the same product(s) using the same patents.

Grants

The licensor authorizes the licensee for the term of the contract to make and sell the product within a specified territory. Among the details specified will usually be:

1. Scope of technology and products.
2. Details of patent rights (numbers and countries).
3. Form of know-how to be transferred.
4. Sublicensing rights (e.g., affiliate status).
5. Degree of exclusivity.
6. Territorial limits.

Performance guarantees and warranties

This licensor guarantees certain aspects of process performance (e.g., yield of product from raw materials) and of product quality (e.g., chemical analysis).

Admission of patent validity

Licensor admits when the applicable patents will expire and where they are valid.

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(Attachment IV-7 continued)

Termination of license

This clause specified the intended expiration date for the agreement and conditions for prior termination. A renewal option may be involved after the termination date.

Assignability of license

The Licensee is usually given the right to assign the license to another organization in certain circumstances (e.g., being acquired by another corporation) as long as the assignee assumes the obligations of the original agreement.

Due Diligence

Both parties usually agree to exercise due diligence to protect certain rights of the other party.

Technical improvements

Licensors may agree to provide the licensee with access to subsequent improvements in the technology, usually in return for compensation of the cost of transferral.

OBLIGATIONS OF THE LICENSEE

Royalties

The payment of royalties is specified in many different forms (see accompanying piece for a description of royalty forms).

Reciprocal grants

This clause obligates the licensee to provide any technology which is tied to the primary agreement. This provision is usually of minor importance to the MNC when licensing into a developing country.

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(Attachment IV-7 continued)

Confidentiality

Both parties agree to hold as confidential specific portions of the technology and some details of the venture. Care must be taken to specify the obligations of each organization to guarantee the actions of its own employees. Some complications also result from the obligations of both parties to retain confidentiality beyond the term of the contract.

Accounting basis and inspection rights

The methods of accounting and the right of the licensor to audit those accounts are usually specified whenever royalty payments are based upon unit sales or sales revenue.

NOTE: The brief summary above is expanded in Manual on the Establishment of Industrial Joint-venture Agreements in Developing Countries. United Nations Sales No. E.71.II.B.23; Chapters 6 (Patent Licenses) and 7 (Technical Information, Technical Assistance, and Know-How).