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Karim Pakravan

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Multinational Firms and the Development of the Iranian Oil Industry*

KARIM PAKRAVAN**

Between late 1973 and early 1974, the foreign oil industry was subjected to revolutionary economic changes. Crude oil pricing decisions, traditionally initiated by the international oil companies, were taken over by the OPEC¹ members. . . . The OPEC members quadrupled the price of crude oil, and the OAPEC² members cut back production and put an embargo on shipments to the United States for political purposes. These actions set in motion radical changes in national energy policies, in international balance of payments, and in the role of multinational oil companies. The age of inexpensive oil and of market determination of petroleum prices and outputs had passed.³

The effects of the revolutionary decisions initiated by the oil producing countries in the early 1970's upon the OPEC members themselves were scarcely less profound than those felt by the oil consuming world. The hitherto exploited producing countries suddenly found in their hands not only a potentially destructive weapon in terms of joint pricing and producing decisions, but also opportunities to restructure their relationships with the multinational oil firms.⁴ Iran took advantage of this opportunity, replacing the Iranian Consortium Agreement⁵ with a long term supply contract that brought all oil operations in Iran under the direct control of the Iranian government through its agent, the NIOC.⁶ This agreement, in con-

* Editor's note: The reader will note that this article was written prior to the occurrence of the events which have recently transpired in Iran.

** Dean, Faculty of Social Sciences and Humanities, Free University of Iran. M.S., 1972, London School of Economics; Ph.D., Econ., 1976, University of Chicago.

1. Organization of Petroleum Exporting Countries.

2. Organization of Arab Petroleum Exporting Countries.

3. N. JACOBY, *MULTINATIONAL OIL* 301 (1974).

4. A multinational firm is one owning producing assets in at least two countries, and, in the case of the "Majors" (British Petroleum, Exxon, Shell, Gulf, Texaco, Mobil, Socal), many more than two countries.

5. Under the terms of the consortium agreement, the seven "Majors" participated in predetermined percentages: British Petroleum (40%), Royal Dutch Shell (14%), the five U. S. Majors (7% each), eleven independent oil companies, known as IRICON (5%), and the Companies Françaises des Pétroles (CFP) (6%) in exploration and production of all petroleum within the consortium area (100,000 square kilometers). The Iranian royalty was fixed at 12.5% of total revenue, and in addition, shared equally in net profits. The effect of the consortium in financial terms was enormous: an immediate tripling of Iran's per barrel revenue (from twenty-five to eighty cents per barrel).

6. National Iranian Oil Company. Under the supply contracts presently in effect, the NIOC sells petroleum to the consortium at a posted price per barrel, usually including a minor discount to the multinationals with whom Iran formerly dealt on a

junction with the joint venture contract,⁷ (used primarily with independent oil companies), and the newer service contracts,⁸ gives Iran unprecedented control over the production and sale of its oil.⁹ However, Iran, just as all OPEC members, does not

concession basis. The discount is partly used by the consortium to make loans to NIOC to cover its capital outlays. NIOC is presently renegotiating this purchase agreement because of its dissatisfaction with the consortium's performance, especially concerning the "minimum offtake program," whereby the consortium agreed to purchase a minimum amount every year.

7. Under the typical joint venture contract, the government acts in its sovereign capacity and as a partner in the venture. The joint venture pays taxes to the sovereign based upon a predetermined percentage of revenue (usually 50%). The government then, as a partner, again takes some 50% of the remaining profit with a result that the percentage of profit is 75%-25% in favor of the producing country.

8. The service contract is coming into increasing use throughout the world, but as yet there is no information available on the net benefits accruing under it to the host government. Under a service contract, the producing country bears the economic risk of discovery and owns all production assets. The multinational firm supplies the technical and managerial expertise of discovery, refining, and marketing for a fee, usually a percentage of the profit.

9. In a comparative analysis (using these variables: financial return to producing countries, national sovereignty, and conservation), it seems from available data that the joint venture regime is more favorable to the producing country than the concession regime, which was so widely used in the period from 1954-1973, principally in the consortium agreement.

While, as the following table suggests, the concession regime is slightly more favorable in terms of financial return,

Table 1

Producer	Per barrel disposable Revenue Received by Iran (cents per barrel)						
	1968	1969	1970	1971	1972	1973	1974
Consortium	80	83	123	133	164	860-960	
SIRIP	22	22	22	25	28	24	n.a.
IPAC	40	33	29	51	75	88	n.a.
IMINICO	—	24	31	39	66	106	n.a.
LAPCO	18	29	52	89	100	144	n.a.
NIOC	140	200	174	182	200	348	1336

the difference decreases as the price of oil increases. F. FESHARAKI, *THE DEVELOPMENT OF THE IRANIAN OIL INDUSTRY* (1976).

However, in terms of conservation, the joint venture regime appears clearly superior. Conservation may be defined as lower production and/or investment in order to maintain or increase capacity. Two indices that are useful in presenting the relative conservation efforts of the two regimes are the cumulative drilling-production ratio (CDPR) and the ultimate reserves-cumulative production ratio (URCPR). Generally, a higher CDPR will mean a greater effort in maintaining or increasing capacity, while a lower URCPR will mean a greater effort in conserving the resource through lower production. Although these indices have not been adjusted for any qualitative differences in the oil bearing fields, considering the fact that every oil region included belongs to the same oil basin, these indices do retain explanatory power.

yet possess the technical knowledge necessary to properly conduct all phases of oil production, from upstream to downstream activities.¹⁰ The multinationals, on the other hand, possess a

Table 2

**Cumulative Drilling-Production
Ratio**
(Meter/thousand cu. m)

	1960-73	1973-76
Consortium*	.57	.92
SIRIP	9.7	2.08
IPAC	3.32	3.24

Computed on the basis of NIOC annual reports 1960-76.

*OSCO after 1973.

This table indicates a better performance for the two joint ventures considered than for the consortium, even bearing in mind the superior quality of the consortium oil fields.

Table 3

Cumulative Production-Reserves Ratio

	Cumulative Production (million) bbls	Ultimate Proven Reserves (million) bbls	Cumulative Production Ultimate Reserves Ratio
Consortium	28084	80850	.34
IPAC	299	2457	.12
SIRIP	126	2113	.60
LAPCO	484	1500	.32

Based on a field compilation. Data reported in 1976.

The figure for LAPCO is lowered by the fact that it does not include ultimate reserves for Bahram field, for which no data is available.

Table three indicates a better performance for IPAC and SIRIP than the consortium and LAPCO in terms of a slower depletion of oil reserves.

Conservation is here considered of primary importance because effective resource management is essential to increase the life of the exhaustible oil supply, and thereby increase the transition phase from a world economy based on exhaustible fossil fuels to one based upon an inexhaustible source of energy, such as solar or geothermal energy. Such a lengthened transition phase is essential to help prevent the disastrous effects on the world economy that can be expected if the fossil fuels are too rapidly depleted.

10. Upstream activities consist of exploratory and development activities, such as geological and geophysical search activities, drilling of exploratory and development wells, and arranging the technical infrastructure. Midstream activities include the transportation of oil by pipeline and/or tanker ships. Downstream activities consist of refining and marketing.

virtual monopoly over this technical and managerial know-how. As such technology cannot practically be developed over the short run, Iran will continue to be dependent upon the multinationals to properly exploit its oil reserves. This necessitates a discussion of the proper role for the multinational oil firm in Iran on terms that will maximize the benefits to the producing country. In this connection, the following fields may be identified in which foreign operator assistance will continue to be necessary over the short run: provision of technology in upstream, midstream, and downstream operations, and the provision of capital. In what follows, each will be analyzed in turn.

I. PROVISION OF TECHNOLOGY

Given that foreign oil firms (and this includes independent as well as multinational oil firms) have a virtual monopoly on the technology of upstream, midstream, and downstream operations, as well as the fact that the development of such technology is a long and costly process, the solution for Iran would seem to include the purchase of technical services from foreign firms while simultaneously developing its own technology. The development of technology does not mean the importing or even building of, for example, drilling platforms, but furthering research and development that can expand on the existing Iranian technological base. Engaging in this course of action would require the creation of a general policy of fostering research and development through various incentives, especially incentives for private industry. This program in the long run will decrease reliance on foreign operators at all stages of the extraction process. This, in turn, will allow Iran to maximize the benefits from the exploitation of Iranian oil.¹¹ However, in the short run, the multinational oil firm will continue to play a large role in the various processes of developing the Iranian oil reserves. This role can be better understood by examining each step in the development process.

A. *Upstream Operations*

In the initial stage of geological and geothermal explora-

11. See Permanent Sovereignty Over Natural Resources, G.A. Res. 1803, 17 U.N. GAOR, Supp. (No. 17), U.N. Doc. A/5344 (1962). This resolution recognized that complete and permanent sovereignty over all natural resources rests with the people of the state in which such resources lie. This of course recognizes Iran's right to exploit its vast petroleum reserves for its own benefit.

tion, the crucial factor is the availability of trained personnel. The NIOC can therefore immediately take over all such activities, and simply procure the necessary human expertise.

The next step in the exploratory process is the drilling of exploratory and development wells. This does require sophisticated technology unavailable on a large scale. The international drilling industry is highly competitive and, therefore, quite cost efficient.¹² This invites, on at least a short and medium run basis, the purchase from the foreign operators of such services until the Iranian domestic drilling industry reaches a level of technological sophistication that will allow it to compete with foreign operations.

B. *Midstream Operations*

In the transportation of oil in pipelines, the construction

12. There is also significant evidence that prior to the drastic OPEC pricing decisions of 1973, the oil industry as a whole had begun to enter an era of freer competition. (See, e.g., N. JACOBY, *MULTINATIONAL OIL* 299 (1974), for a view that crude oil prices had become essentially market-determined rather than supplier-announced, in the major consuming nations in the period from 1957-1973.) This can be seen from a presentation of the changes in the concentration of the foreign oil industry in the period for 1953 to 1972:

Table 4

Summary of Changes in Concentration of the Foreign Oil Industry
By Division, 1953 and 1972

Division of the Industry	1953		1972	
	"Seven Largest" Companies Combined (Percent)	All Other Companies Combined (Percent)	"Seven Largest" Companies Combined (Percent)	All Other Companies Combined (Percent)
Area of Operation	64	36	24	76
Proven Reserves	92	8	67	33
Production	78	13	71	29
Refining Capacity	73	27	49	51
Tanker Capacity	29	71	19	81
Product Marketing	72	28	54	46

Id.

However, the tendency of the foreign suppliers to control supply through a mechanism known as the Aggregated Programmed Quantity Agreement between the members of the Iran Consortium (that is, the seven Majors), as well as the tight control of marketing outlets by the majors may make such competition more illusory than real.

of the pipeline can be taken over in the long run by the domestic industry. However, until it becomes large enough to undertake such enormous projects, such construction projects will have to be contracted out to foreign construction firms. The actual naval transfer of petroleum is entirely another matter. The oil tanker business is becoming increasingly risky. Large fluctuations in tanker rates in the past year have been very burdensome both to shipbuilders and tanker fleet owners. There is, of course, the further risk of pollution of the marine environment by tankers. Given the strong competition in the international oil tanker business, as well as the enormous capital expenditures necessary to build a fleet, a more prudent policy would be to simply purchase necessary tanker services.

C. *Downstream Operations*

These operations, consisting of refining and marketing, require the greatest amounts of technical, financial, and managerial expertise. It is this facet of the oil development process that seems to be the most dependent upon foreign oil operatives. This supplies the foreign multinational oil firm offering such expertise a powerful lever in negotiating with producing countries. In this area, then, special emphasis in developing a domestic industry would seem to offer great benefits to Iran. This must be viewed in terms of development in the long run, as the tremendous financial and intellectual efforts required preclude short term development. Viable alternatives in the refining industry would seem to be (in addition to a gradual development of Iranian refineries), the purchase, in joint venture contracts, of refining services abroad, or simply to allow the crude oil to be refined abroad by the foreign multinationals, as is presently the case.

Marketing presents a more formidable challenge. Although by 1977, NIOC was exporting (marketing) directly 1,165 TBD,¹³ this was mostly to Eastern Bloc and Third World Countries.¹⁴ However, the traditional control of marketing and distribution by the Majors in the Western consuming countries has thus far prevented the development of large scale market-

13. Thousand barrels daily.

14. For instance, NIOC recently entered into joint ventures for refineries in both India and South Africa, as well as concluding barter deals with Brazil (oil for industrial and agricultural goods involving approximately one billion U.S. dollars) and various Comecon countries.

ing activities in such countries. It would appear to be a very risky and costly undertaking to attempt to preempt a share of this potentially vast market for Iranian oil. This is true not only due to the risks inherent in such an enterprise, but also because of the vast distribution structure that would have to be set up and staffed. While certainly possible and promising in the long run, in the immediate future, the multinational oil firm will continue to play the key role in the refining and marketing of crude oil.

II. PROVISION OF CAPITAL

The oil industry is capital intensive. This is true not only because of the tremendous amount of assets necessary to conduct even the most modest of operations, but also because the oil industry is entering an irreversibly increasing cost phase.¹⁵ While Iranian oil revenues are high,¹⁶ they are largely earmarked for domestic economic development. Thus, most of the required capital for further resource development must be provided by the international petroleum industry. The incentives necessary to attract the vast amounts of capital required can be included in the joint venture and long term supply contracts.

III. CONCLUSION

In the wake of the revolutionary economic changes wrought by the OPEC cartel action of 1973, oil producing countries as a whole are beginning to redefine their relationships

15. This is caused by the increasing difficulty of locating and extracting a scarce resource in an industry where the lowest cost oil fields (such as the one exploited by the Iran Consortium) are all but gone. The search for oil thus must lead to more offshore drilling and similar costly operations. Of course, world inflation also serves to increase cost. The following table graphically demonstrates the rapidly increasing investment per daily barrel, which is an index of the average cost of investment in capacity for the period 1972-1976.

Table 5

	Investment per daily barrel US \$/daily barrel			
	1973	1974	1975	1976
World	275	415	447	548
Middle East	40	46	52	94

16. Oil revenues for the OPEC countries in 1974 as a result of the pricing decisions were an additional \$60 billion due the OPEC countries from the consuming nations, N. JACOBY, *supra* note 12, at 302 (1974).

with the multinational oil firms, who formerly controlled not only production, but pricing decisions as well. However, despite the new found control of production and pricing by oil producing countries, the very nature of the industry, (one requiring very sophisticated technical, financial, and managerial expertise) mandates a continued active role in the Middle East industry by the multinational oil firms possessing the necessary expertise.

Iran, over the long run, must work to maximize the benefits derivable from its vast oil reserves by developing its own technology, especially in the areas of upstream research and discovery and downstream marketing. This will require a vast national effort concentrating on expanding and enriching the existing Iranian base to include the necessary technical, managerial, and investment know-how needed to make Iran a full participant in the Middle East oil industry.