

THE WORLD ENERGY CRISIS AND IRANIAN STRATEGY*

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Ever since 1970 and especially since the end of 1973 there has been talk of a world-scale energy crisis. Is this a crisis in the supply of energy to Societies based on industry and machinery, or is it a crisis within industrial Societies manifested by a change in their energy supplies? A good analysis of these two hypotheses shows this crisis to be the fundamental outcome of various principles and their resulting politico-economic strategies. The motivating principle of the producing countries is two-fold: that of the dependence vis-a-vis the companies and the economies to which they are connected; and the importance of oil from an economic standpoint and not only from a purely "fiscal" point of view¹. Historical analyses of all the producing countries confirm this duality and also show the increasing importance of the economic factor. It seems that the long term trend is the replacement of dependence by interdependence through the homogeneity of the economic and especially the cultural structures of the so-called developed and developing societies. Effective forces are working towards this end through private and public consumption² and their fundamental objectives, if not common, are at least similar.

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1. The appropriation of an increasing proportion of the rent due to the difference between the administered price of oil and its theoretical price could well show the effect of this strategy.
2. By means of widespread forced saving, the theory of which has yet to be formulated.

The strategies which result from this principle may be seen on an international scale by agreements to share the capital of the companies, by the withholding of concessions by means of nationalization or preference of sale granted to the companies, or by barter agreements with the consumer countries to meet the consumption and industrialization targets of the states and nations. This principle makes use of the difficult and yet convenient tactic for revaluing the price of oil. In this respect there is on the one hand the problem of finding criteria for calculating an optimum price which takes account of all the present variables. On the other hand an increase in the price will release an additional flow of large monetary capital (certain estimates are as large as 70 billion U. S. \$) the possession and use of which present problems which could under certain circumstances bring about economic changes not only in the oil-producing countries but, on a wider scale, in the rest of the world too (the West, Eastern Europe, and even the Third World). One of the consequences of this reflux is the proposed and actual establishment of banks and investment companies (take, for example, the Arabian finance company recently founded in Beirut by Western and Japanese banks and interests from Kuwait and Libya, whose operation as from April 1974 will be banking projects directed towards financing and providing for the development of Africa and Asia)*. Another question is that of the ability of absorption of these economies.

The companies themselves take note of the new politico-economicotechnical environment in which their policies must of necessity follow an optimum path which may have common fronts with that of their countries. They too have adopted a more economic and less juridical attitude towards the policy of independence or, more precisely, towards the producers' policy of "participation"³ and, as any large economic

* For a list of this banks, see The Banker, March 1974.

3. It could be maintained that there is an "objective" alliance between producers and companies in so far as the companies being intermediaries benefit from a rise in the prices to consumers. With the new agreements the companies are managing to opt out of the argument which has arisen between the producers and the consumers over the price of crude oil.

unit, they carry out a policy of integration and diversification which conforms to their objective. The complexity and importance of this new attitude become clear when one considers the highly capital-intensive nature of the oil industry, as well as the localisation of the investments in this sector which are influenced not only by economic criteria. The same is true of their strategy of diversification and their policy of innovation (coal, bituminous sands and shales, and also nuclear energy). According to certain studies, all ten large American companies⁴ have holdings in four different sources of energy.

An analysis of the motivating principles of the importing countries reveals a necessary distinction between, on the one hand, the economies of the West and Japan and, on the other hand, those countries of the Third World which import their energy-producing materials.

The economic decline of coal since the sixties, as well as the production and development of machines which both directly and indirectly consume increasing quantities of oil-based energy (motor cars in particular) in the economies of the West and Japan since 1950^{"4a"}, has made these countries⁵ realize their dependence on Asia and Africa. In effect, however, their dependence differs from that of the nations of the Third World. The dependence of the former is of an economic and social nature, and is therefore more general than that of the latter which is of a technical nature (geographical localization due to geological accident).

4. See J.-M. Chevalier, *Le nouvel enjeu Petrolier*, Calmann-Levy, 2d-edition, 1974.

"4a" Between 1950 and 1971 the total production of energy increased by about 280%, whereas the production of oil increased by 450%.

5. In 1972 more than 70% of the world's oil was consumed by North America, Western Europe and Japan, whilst all these countries together produced only 28% (620 million tons) of the total and used only 9% of their total proved reserves as of 1.1.1972.

The strategy selected by the Atlantic countries-including Japan is complex. Its objective is probably energy security or could, in the long term, be energy self-sufficiency. To understand this it is necessary to distinguish between the structure, or rather the organization, of this strategy and its composition. From the organizational point of view two approaches present themselves: that of introducing the producers right at the beginning of the process, and making bilateral agreements with them. This tactic, by reason of its simplicity, is put into practice by some consumer countries such as England (the barter agreement made with Iran on 25.1.1974 concerning 5 million tons of crude oil), Italy, Japan, Germany and France (agreements with Saudi Arabia, Iran, Iraq, Kuwait and Libya). After the conference held in Washington on 11th February, 1974, this approach which was supported mainly by France, may be called bilateralist. The second approach which may be termed multilateralist is supported mainly by the United States and recognizes the establishment of an organization for the purpose of protecting the consumer countries' interests in the first place, and secondly for negotiating with the producer members of OPEC. The co-ordinating body which was the outcome of the Washington conference is an illustration of this strategy. Should it consist of supervisory group co-ordinating the political efforts of the large oil consumers, or should it be a body with an external objective (of defence or rather of dissuasion), or perhaps a combination of the two.

According to the approach chosen and the objective of their strategies, the economies in question will follow two concomitant courses: measures to obtain oil, and simultaneous research and planning programmes, so as to keep pace with the growing demand for energy by "sure" sources of replacement and complement⁶. This last policy arises naturally from the individual circumstances of each economy with

6. And the tactics differ from country to country: see the agreement between Japan and France on the sale of enriched uranium to Japan (26.1.1974).

regard to its available resources⁷, its existing technology and, above all, the ability to use the latter (the severe problems which arise from the application of nuclear techniques are well known: construction of the power stations and waste disposal)⁸.

Oil consuming developing countries, i.e. the new Third World, do not have any strategy as such. They are prevented from doing so as much by one side as by the other. Nevertheless, it is clear that a strategy and a real plan taking account of their development ought to be selected, a strategy in which the following three groups of each country would participate: the interested parties, the holders of oil and other raw materials, and the industrial companies. Such a policy on a world scale could be confused with a short-term solution, so it would have to be worked into a detailed plan setting the development of these countries within a mid-and long-term framework.

Having analysed the strategies of the various existing pressure groups, we shall now examine the position occupied by oil in the Iranian economy and also the oil strategy of this country.

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7. Coal in the U.S.A. and a little in Germany, asphalt sands in Canada, bituminous shale in the U.S.A., etc.
 8. In this respect, we quote the following statement about nuclear power: "... plutonium, an entirely artificial substance and chemical poison (which loses only half its radio-activity after 25,000 years) is really the most horrible and most dangerous product man has ever created. It will not be easy to insure against all risk of spillage or accident while being transported, when there will be thousands of tons of it throughout the world". Louis Puiseux, op. cit., 1973, p. 60.

SECTION I

OIL AND THE IRANIAN ECONOMY

An analysis of the recent economic evolution in Iran reveals a paradox: the multiform preponderance of oil and the simultaneous pursuit at least implicit - for an economy increasingly independent of it. This paradox may be accounted for in so far as the economy in question follows a course which integrates oil as a source of revenue (added value, royalties¹, indirect revenue) and as a consumer product being either a source of energy or a raw material.

Subsection I

Oil Revenue

Many studies take account of and give the statistics representing the oil revenue received by Iran. In fact it is clear that over quite a long period, ever since 1908, Iran's oil production has been steadily increasing² as is

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1. The different types of income obtained from oil which are of a fiscal nature are basically like the rights of sovereignty on the occasion of the coining of money.
 2. Two exceptions to the steady increase of oil production may be observed: the first may be attributed to the Second World War when production decreased in 1941 to 8 million tons, after having reached 10.3 million tons in 1937. The second exception occurred when oil was nationalized in 1951. Production scarcely reached 1 million tons in 1952, and it was not until 1957 that 35.3 million tons were produced, an increase on the 1950 figure of 32.2 million tons.

shown in the following table:

Table 1. Development of oil production in Iran

Year	Production in thousands of tons
1912	43.7
1915	381.9
1920	1,406.4
1925	4,403.2
1930	6,000
1935	7,607
1940	9,300
1945	17,122
1950	32,259
1955	16,324
1960	51,800
1965	89,400
1970	191,700
1971	223,900
1972	254,000
1973	303,784

Sources: O.N.U. (Yearly statistics); Bank Markazi Iran (Reports); Statistical Centre of Iran.

A study of the rules which controlled the relation between Iran and the consortium reveals that the revenue drawn directly from oil has been an exclusive function of the variable quantity produced. There have, of course, been revisions to these rules in the years 1930³ and 1950⁴, but the previous conclusion remains valid until the disagreements which have taken place since 1970 and have led up to the oil crisis analysed above. Between 1960 and 1970, in fact, the

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3. The concession of 29.4.1933 between Iran and the A.I.O.C. is valid for a period of 60 years until 31.12.1993 and covers an area of 259,000 square kilometers.
 4. In the fifties one must draw attention to the law of 15.3.1951 which brings about nationalization, and the agreement of 5.8.1954 between Iran and a consortium of the 8 "majors".

oil revenue of Iran has been almost quadrupled, rising from \$285 million in 1960 to \$1075 million in 1970, but the unit revenue has remained virtually stable: 79.6 cents a barrel in 1963 and 86.9 in 1970.* It is in the 1970's that the price variable has to be taken into account in the oil policy of the country.

In the long term, the analysis will take a broader view of the oil revenue by adding to it firstly, the income from exports of oil by the National Iranian Oil Company (\$5.2 million in 1968-69 and \$29.5 million in 1972-73) and secondly, the revenue from the sale of currencies by the oil companies to cover their rial requirements (125 million in 1968-69 and \$137 million in 1972-73⁵). For some years now the income from the sale of gas has been added to the oil revenue figures (\$6 million in 1970-71, and \$61.2 million in 1972-73). Taking all these factors into account, as well as the actual overseas expenditure of the N.I.O.C., the net income of the oil-gas sector is given in the following table

Table No. 2

Net Oil Receipts of Iran in Millions of Dollars

Category	1968-69	1969-70	1970-71	1971-72	1972-73
1. Oil receipts	958.5	1099.0	1268.4	2114.1	2536.0
2. Exportation of gas	-	-	6.0	35.8	61.2
3. Currency expenditure of the N.I.O.C.	21.0	31.6	26.0	43.1	31.1
Total=(1+2)-3	937.0	1068.4	1248.4	2106.8	2566.1

Sources: Report of the Central Bank of Iran, 1972-73; N.I.O.C. Report, 1972.

5. Report of the Central Bank of Iran, Table No. 21.

* See oil in Iran, Tehran 1971, P. 38.

It is known that a large proportion of the revenue finances the development plans, but a fundamental problem arises when the importance of the oil revenue is considered after the increases which have taken place since the beginning of 1973. Given that the technical and economical conditions of production and consumption can be assumed to be stable and that current prices remain unchanged (January 1974), some experts have estimated the additional revenue of Iran for 1974 to be in the region of \$12 or 13 billion⁶. It is true that, taking account of its human and natural potential, the Iranian economy's capacity of absorption is greater than that of many other oil exporting countries. It is, nevertheless, also true that time is pressing, the channels through which this capital would have to go are limited, and the price structure would become disorganised as a result of the non-economic injection of this revenue.

An adequate study of this important problem requires many more facts and is therefore beyond the general framework of the present analysis. It is useful to note, however, that from a fundamental point of view any actions taken to deal with this matter ought to be integrated within a policy which aims to make full use of the productive resources of the country and avoids superficial measures. This implies a revision of the Fifth Plan (1973-77) and the adoption of a longer term (1980-90) agrico-rural plan covering a wider range of matters than the existing one. In addition, given Iran's humanitarian role in the regional and international arena, the importance of its resources, and not forgetting the possible repayment of its foreign debts, the country can participate in established financial and technical institutions in order to assist the development of what has been called since the beginning of the energy crisis the 'real

6. It has been estimated that the consumer countries will have to provide \$67.9 billion (\$39 billion from Europe, \$15.5 billion from the U.S.A. and \$13.4 billion from Japan). This additional revenue will be distributed between the producer countries as follows: Saudi Arabia \$19 billion, Iran \$16 billion, Venezuela \$10 billion, Kuwait \$7.8 billion, Nigeria \$6.8 billion, Indonesia \$4 billion, Libya \$6.5 billion, Iraq \$ 6 billion.

Third World' (see Iran's recent decision to take an active part in the establishment of a neutral financial institution with I.B.R.D. and I.M.F.).

There is also reason to study the effect of the value added in the oil industry within the country itself. The Central Bank's statistics give figures which comprise the amount paid in salaries, the proportion which goes to the State (former revenues) and the rest (taxes and duty). The amount paid out in salaries is in the order of \$210 million. But this sum cannot be regarded as being of great importance because of the capital-intensive nature of the oil industry.

Subsection II

Oil and Production

Here we shall emphasize the importance of oil products and gas as raw materials and a source of energy within the framework of the national economy. Because of the wave of industrialisation and public investment which has taken place since the sixties, and also because of the distribution of new and increasing revenues, the consumption of energy has experienced, both in its absolute amount and in its per capita measurement, a very rapid increase. The following table illustrates this over recent years in comparison with some other countries and the world as a whole.

Table No. 3

Consumption of Energy

	Total in Millions of equivalent tons of coal.		Per capita consumption in equivalent kg of coal.	
	1968	1971	1968	1971
WORLD	6,018.97	6,817.45	1,733	1,927
U.S.A.	2,080.32	2,327.64	10,398	11,244
FRANCE	163.95	193.04	3,282	3,928
JAPAN	254.47	341.90	2,519	3,267
IRAN	13.17	26.66	486	895
TURKEY	15.12	18.65	451	516

Sources: United Nations Annual Report, 1972, N.Y. 1973, pp. 353 and 355.

In order to explain the problem of the growth of energy we have obtained the following relations between the per capita consumption of energy in Iran from 1961 to 1970 and the per capita income, the industrial production per head, the urban population and the total population over the same period.

1. $y = -195.61 + 2.88x$ ($r^2 = 0.73$)
2. $y = -3.74 + 0.12x$ ($r^2 = 0.74$)
3. $y = -21.44 + 0.0034x$ ($r^2 = 0.94$)
4. $y = -44.4 + 0.0022x$ ($r^2 = 0.02$)

The same conclusion may be drawn from other statistics provided by either Iranian or international sources⁹. In

9. In "World Energy Supplies, 1960-1970" published in 1973, the United Nations, gives for the total consumption of Iran figures of 7.151 millions of equivalent tons of coal in 1960, and 25.465 in 1970 (323 equivalent kg of coal per head in 1960 and 887 in 1970), p. 37.

addition, these statistics illustrate the importance assumed by gas in the composition of energy consumption in Iran and its very rapid growth which results from the improvement in the standard of living and the search for an assured comfort. Bearing in mind the competition between gas and oil, this has clear consequences for industry. The consumption of gas has increased more than ten-fold from 1960 to 1970 (1.390 million equivalent tons of coal to 13.664.)

In spite of the fact that electricity is still a very small proportion of the total amount of energy consumed, it too is increasing rapidly (0.001 million equivalent tons of coal in 1960 and 0.203 in 1970)¹⁰. The speed of this growth may be explained partly by the initial slow growth, and partly by a programme for installing and carrying of electricity over the entire country. This attempt at encouraging the use of electricity may be shown by comparing the relative amounts produced publicly and privately in the total production of electricity¹¹: in 1967-68 private production was 2.30 million KWH and public production was 1.84 million KWH; in 1972-73 the figures are 2.68 and 6.87 respectively.

It is in this way that the structure of energy consumption undergoes a change which is reflected in the entire economy and affects the industrial composition of the national economy and the composition of its foreign trade.

This collection of circumstances is manifest by new occupations being linked to traditional occupations, by new commercial circuits, by new costs and output structures, as well as by new incomes. A technique which would provide a limited response is the setting up of 'input-output' tables, and especially the change of the technical co-efficients of oil consuming industries.

10. op. cit. in (9), p. 37

11. Central Bank of Iran, Report 1972-73, p. 228

The following table gives the figures for the technical coefficients between the oil sector and the other sectors of the economy for the years 1965 and 1972.

Table No. 4: Technical coefficients of the consumption of oil products¹²

Branches	1965		1972	
	Petroleum	Chemical	Petroleum	Chemical
1	0.002261	0.002261	0.001496	0.004985
2	0.0	0.030303	0.010417	0.041667
3	0.166202	0.000929	0.200833	0.001281
4	0.008785	0.007321	0.014952	0.007775
5	0.020202	0.001684	0.027793	0.015760
6	0.0	0.020833	0.0	0.009346
7	0.0	0.0	0.0	0.046512
8	0.017857	0.017857	0.017647	0.144118
9	0.032967	0.010989	0.033816	0.019324
10	0.0	0.0	0.0	0.004292
11	0.085714	0.0740	0.039841	0.003984
12	0.074074	0.0	0.043269	0.0
13	0.044944	0.011236	0.024129	0.020810
14	0.038462	0.019231	0.020979	0.034965
15	0.005085	0.003390	0.006073	0.005398
16	0.058824	0.0	0.056738	0.007092
17	0.069149	0.0	0.066667	0.0
18	0.001350	0.0	0.001780	0.0
19	0.004132	0.005510	0.005277	0.015831

12. The 19 sectors used for the input-output table are:
 1. Agriculture; 2. Mining; 3. Oil; 4. Food; 5. Textiles
 6. Timber; 7. Paper; 8. Chemical Products; 9. Non-Metallic minerals; 10. Base metals; 11. Metal products; 12. Machine tools; 13. Automobiles; 14. Other manufactured products; 15. Construction; 16. Water and electricity; 17. Transport and communication; 18. Banking; 19. public and private services (Ministry of Economy, 1973).

These coefficients must be completed before a more exact account may be given of the introduction of oil in the productive economy of Iran. In the first place it must be noted that these coefficients underestimate the intermediary consumption of oil products in some sectors because it is supposed that their productive structures have remained unchanged over the period 1965 to 1972. This is true, for example, of the agricultural sector whose intermediary consumption is 0.3 billion rials in 1965, is the same in 1972, and is predicted to remain unchanged until 1976 (Forecasts)¹³. This pessimistic hypothesis only emphasizes the relatively underdeveloped conditions of 1965 without making an analytical forecast which takes account of the growth of the monetary components (inflationary tension, increases in revenue) of the economy and hence its fundamental structure.

Secondly, the importance of oil for the domestic economy becomes clear only after 1965 through the development of the chemical, in particular the petrochemical, industry¹⁴. For example, the input coefficient of chemical products in agriculture is 0.002261 in 1965, and it reaches 0.004985 in 1972. Given the evolution of consumer behaviour, the structure of the demography, agricultural production and the rural sector, it is possible that this coefficient will approach a figure of 2 per cent. at the end of the Fifth Plan (1977). This increasing importance of oil for the domestic economy is only one of the features of the Iranian oil strategy which will be studied in the next section.

SECTION II

OIL STRATEGY

The world in which the Iranian oil strategy is played

13. Ministry of Economy, op. cit., pp. 49 and 55.

14. It is in 1965 that the National Petrochemical Company was established (Role of the oil industry in the Iranian economy - N.I.O.C.).

is one of the most complex. It would be a mistake to make over-simplified analyses and construct models of explanation and decision based on a unique optimum resulting from the use of only a few variables which relate solely to the problem under consideration. It is really a 'game' with more than 2 and quite possibly 4 or 5 players who have politico-economical and technical (military, scientific) power and also unequal sources of information and influence which these same 'players' oppose or overcome. The present analysis will leave the experts in political science to build the model representing these relations, and here try to define only the economic consequences of the Iranian oil strategy both nationally and internationally.

Subsection I

Historical Analysis

Historically it has been foreign action which has characterised and at the same time comprised the basis of the Iranian oil policy. This predominance is explained by the permissive nature of the external oil policy which has been the basis of success.

In order to outline this policy it is necessary to give an historical review from which the stability of and the changes in this strategy may be traced, and consequently the specific periods over a century of the oil history of Iran may be singled out.

The concession of 25 July, 1872, to Baron Julius de REUTER for a period of 70 years marks the beginning of this history¹. Because of its vagueness regarding routes of communication (rail links, postal and telegraph services, canals), mines (excepting gold, silver and precious stones)

1. See G. CURZON, *Persia and the Persian Question*, 1892. For a chronological resume of the Iranian Oil industry see *Oil in Iran*, edited by The Iranian Petroleum Institute, Tehran, 1971, p. 144 etc.

and banking and customs, and also because of its geographical area, this concession was rescinded by. NASSERDIN-SHAH under pressure from Russia. Several years later, by virtue of 'damages and interests', Baron de Reuter obtained a new concession² whose principal object was the foundation of a financial and banking monopoly called The Imperial Bank of Persia³. Other concessions regarding, in particular, the oil wells, petroleum products and gas were linked to this main concession.

The Imperial Bank created a British company called 'The Persian Bank Mining Rights Corporation'. In 1890 it started drilling for oil but abandoned this because of the difficulties encountered and the small yield.

It was not until 28 May, 1901, that W.K. D'ARCY⁴ was granted a concession by MOZAFFARODDINE SHAH for a period of 60 years covering the entire country except for the 5 provinces bordering on tsartist Russia⁵ and representing a total area of 500,000 square kilometres. Oil was struck on 26 May, 1908, and in 1909 the Anglo-Iranian Oil Company was established.

In 1914 the British government acquired 52.5 per cent. of the stock of the A.I.O.C. which became in effect a state

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2. This new concession dates from 30 January, 1889. Note that in 1877 a petroleum concession was granted to Ali AKBAR AMIN concerning the fields of SEMNAN.
 3. Note that in 1890 a banking concession was granted to a Russian subject named POLIAKOV with a view to creating the Lending Bank of Persia.
 4. In 1896 and 1899 concessions were granted to Mohammad VALI KHALATBARI (Mazanderan) and to Russian financiers (Azerbaijan) respectively. These concessions were unsuccessful.
 5. The 5 provinces were: AZERBAIDJAN, GUILAN, MAZANDERAN, ESTERABAD (GORGAN), and KHORASSAN.

-owned company.

About 1930 Iran decided to adopt a policy of industrialisation and modernisation. Since the oil revenues were insufficient to meet its needs, the Government had to annul the 1901 concession by using a juridical argument (resolutive condition arising from the very nature of a synallagmatic contract ...). This was completed on 17 November, 1932. On 29 April, 1933, the agreement for a new concession was signed by the two parties. This new concession modified and improved the details of the original 1901 concession which was obtained at a time when the rulers had no idea of the economic consequences of such a contract and when the country was in a state of political weakness"⁶.

The industrialisation and modernisation programmes adopted by Iran both before and after the Second World War could not but affect the outlook, judgement, and above all economic aspirations, if not of the masses, at least of the ruling and middle class minority of the country. This minority was also influenced by the current of idealism which was spreading throughout the world at that time. The economic consequence of this change in ideas was the questioning of the 1933 concession, followed in 1947 by a series of discussions and events. After having refused to approve the agreement of 4 April, 1946, regarding the establishment of an Irano-Soviet petroleum company, on 22 November, 1947, the Parliament (MADJLESS) ordered the Government to enter negotiations with the A.I.O.C. for a revision of the 1933 agreement. A new agreement was made on 17 July, 1949, making provision for an increase in the proportion of the revenues received by Iran. Finally, however, oil was nationalised by law on 15 March, 1951, and after having reached a level of operation approaching zero, the oil industry was once again set in motion after the agreement of 5 August, 1954, between Iran and a consortium composed of 8 international companies (5 American, 1 British, 1 Anglo-Dutch and 1 French).

The origins of this consortium may be traced back to

6. P.D. PEYAMIRAS, *Methods of economic intervention in Iran*, 1945, pp. 120-121.

an agreement reached in London on 9 April, 1954, between the 8 companies operating in the Middle East to establish a body replacing the old Anglo-Iranian Oil Company which would exploit Iranian oil. Separating oil refining from the more costly and hazardous downstream operations, two technical companies were founded by this agreement and they were known as the Iranian oil Exploration and Producing Company and the Iranian Oil Refining Company, together known as the Iranian Oil Operating Companies. The complex and multiform agreement comprises two parts, one of which controls the dealings of the N.I.O.C. with the A.I.O.C. This agreement is not linked with the agreements between the A.I.O.C. and the members of the consortium.⁷

The multiplicity of the opposing parties and interests and the problems raised made this agreement open to various different interpretations. This ambiguity is illustrated by the statement made by a jurist⁸ who said that it was "an agreement dealing with the management, buying and selling of Iranian oil".

A description of the 1954 agreement would necessitate a large amount of detail and is not, therefore, compatible with the limited nature and general purpose of this paper. It is possible, however, to summarize its important points. In principle, the N.I.O.C. is the owner of all the oil - fields and installations. Article 4 of the first part of the contract defines the responsibilities and the powers of the companies, powers which they possess in the name of the N.I.O.C. It is in this way that the companies have all the necessary rights to carry out their technical functions: exploration, drilling, production, transportation, storage, refining and the general exploitation of gas and petroleum.

Article 19 of the contract deals with the policy of production which is mainly conditioned by the demand of the

7. Note that the two technical companies have their head offices at The Hague and are Dutch.

8. Charles CARABIBER, a French jurist.

commercial companies. The total amount of crude oil to be produced by the company carrying out the exploration and production must cover:

1. The quantity necessary to provide the N.I.O.C. with sufficient oil products and derivatives for the domestic consumption of Iran;

2. The quantity (if any) required to supply the N.I.O.C. (Article 23);

3. The quantity required by the commercial companies, as fixed by them.

The compensation envisaged by the companies is two-fold: firstly, the amount required to cover their fees and expenses "calculated on the basis of the principles of generally accepted and applied book-keeping..." (Article 13, Section B). Secondly, the profit of the Iranian Oil Exploration and Producing Company comprises 5 np per cubic metre of crude oil produced and delivered, while the Iranian oil Refining Company's profit is 5 np per cubic metre of refined oil.

The commercial companies buy the oil from the N.I.O.C. at 12.5 per cent. of the posted price. The N.I.O.C. can also obtain its 12.5 per cent of the production in kind.

The proportion which is returned to Iran comprises this 12.5 per cent and also 50 per cent of the profits of the companies forming the consortium. In effect, however, the actual revenues going to Iran were less than that, due to reductions granted on the price of the Persian Gulf.

The contract of 5 August, 1954, similar in its content and length of validity to those signed by the other countries of the Persian Gulf, was to control the exploitation of Iranian oil until the end of the century. It was valid for a period of 25 years and subsequently renewable for a further three 5-yearly periods. The content and provisions of this contract which have just been analysed depended upon two 'marginal' but important points. The first concerns the matter of indemnity which is very delicate because of the different grounds on which it is established and by which it

is justified. The lack of published information regarding the indemnities payable by the other members of the consortium to the A.I.O.C. (which became British Petroleum) is one of the problems. Article 1 of the agreement states that the indemnity payable by Iran to the A.I.O.C. is 25 million sterling to be paid in 10 equal annual instalments of £ 2,500,000 beginning on 1 January, 1957. The indemnities payable by the other members to the A.I.O.C. due to their participation in the installations at ABADAN and KHOUZESTAN -60 per cent - a sum of £200 million has been declared and another sum whose actual figure is secret (always remembering the rules controlling the sharing of costs and expenses).

The second point concerns the choice of the pound sterling as the unit of payment and, consequently, the choice of London as the financial and banking centre for Iran's overseas accounts. According to the agreement (Articles 30 to 33) "all the transactions (those of the consortium with Iran, the N.I.O.C. included) will normally be carried out in pounds sterling and Her Majesty's Government will take the necessary steps to provide Iran with all the facilities of a 'transferable account'. Her Majesty's Government equally undertakes to assist Iran in converting pounds sterling into dollars".

The 1954 agreement rules that the profits and the losses of those who took part in the exploitation of Iranian oil should be shared. One is tempted to say that the A.I.O.C. ranks among the losers. To support this theory it would be necessary to have access to detailed information regarding the indemnities it received from its partners and the real profit drawn from new companies. It is possible, nevertheless, that the amount of the indemnities actually paid and to be paid to it only represents a proportion of its losses and its discounted profits. In any case, it is certain that it played its role very skilfully in order to do its best both from its own point of view and also from that of its principal shareholder. On the other hand, the winners are with no doubt the American 'majors' and also SHELL, and to a lesser degree the C.F.P. For a very long time the Americans had attempted in vain

to gain a holding in Iranian oil.

It was not until the drastic changes of the 70's that the N.I.O.C. has been able to assume a more positive role in the national oil strategy.

Su-section II

Content of the Strategy

The above analysis outlines the criteria separating the various strategies used in the oil industry. There are, in particular, two interdependent components of the Iranian strategy which ought to be emphasized.

The first strategy, which is the most simple and was most frequently used in the early days of oil exploration, may be called 'fiscal'. Concessions were granted by the country owning oil fields with a view to obtaining income in the form of royalties. This income, from the point of view of this strategy, is similar in kind and implication to customs duty except for the traditional nature of the latter. In the justification, calculation and use of this revenue, as capital and as having an impact on the economic growth, the economic dimension has been absent.

An idea of this kind is clearly justifiable when one considers that an understanding and mastery of the capitalistic and highly specialised technology of the oil industry would be impossible, not only for the masses, but also for the ruling classes of a country with an agrarian and pastoral economy and a primitive society. As a result, such an industry remained on the periphery of the economy and was not integrated into it. In addition, the lag or rather the inequality between the financial means and the economic and accounting techniques of the concessionaire and those of the receiving country was such that even those responsible for the latter could not foresee the way in which oil would make a profit.

In the case of Iran this idea prevailed right up until the first 7-year plan (1949-1956) which brought about the

integration of oil into the economic development of the country. From then onwards it is the economic aspect of the oil industry which was stressed. On this occasion the integration of oil was firmly settled firstly, by the allocation of the one billion rials for the creation of the National Petroleum Company (Chapter 4 of the Plan) and, secondly, by the allocation of the oil revenues in order to finance the Plan. These revenues accounted for 37 per cent of a total initially set at \$600 million⁹.

The economic aspect of the oil strategy, far from being a mere slogan, is a plan for the future of oil from a world socio-economic viewpoint. It simultaneously encompasses and goes beyond the fiscal aspect which, by its very nature, is partial. As with every plan and every feasible operation, the economic strategy could not and would not have existed unless it had combined the possible (internal and external principles) with the desirable (a perfect future in the narrowest sense of the word).

Concrete strategies applied in a sphere like that of oil lose their 'purity' so that one is surrounded by hybrid models which, whilst concentrating upon the economic aspect, still contain a certain amount of fiscal aspect. The increasing introduction of the economic dimension into the Iranian oil strategy may be seen both in the foreign and the domestic policy of the country.

This policy is shown in the Petroleum Act of 31 July, 1957, which places the necessary juridical means at the disposal of the N.I.O.C. so that it can fulfil its mandate as agent of the oil industry.¹⁰

9. P.B. OLSEN and P.N. RASMUSSEN, 'An Attempt at Planning in a Traditional State: Iran' in E.E. HAGEN 'Planning Economic Development', Richard D. Irwing Co., Homewood, Illinois, 1963, p. 225.

10. See Bulletin No. 185-186, Bank Melli Iran.

The real potential of petrochemicals, an important offshoot of the oil industry in Iran, had been fully realized for some time now¹¹. Consequently a fertilizer factory was established in Shiraz in 1963 and the National Petrochemical Company of Iran was formed by the N.I.O.C. following a law of July, 1965. Because of the advanced technology used in this industry and the importance of sufficient capital, this law authorized co-operation with foreign industries.

In this way three petrochemical complexes were created. The first is the SHAHPOUR CHEMICAL COMPANY established on the Persian Gulf with equal shares held by the N.P.C. and the Allied Chemical Corporation of the U.S.A.¹². This complex is to be further increased by the addition of a Japanese company, and it is expected to become one of the most important petrochemical complexes. The other two groups are known as the ABADAN PETROCHEMICAL COMPANY (with a 26 per cent share held by B.F. Goodrich) and the KHARG CHEMICAL COMPANY (with 50 per cent of the shares held by AMOCO, an affiliate of Standard Oil of Indiana)¹³.

This represented an important step which achieved the domestic use of gas energy and also provided a number of products necessary for other industrial and agricultural sectors of the country.

The introduction of gas in the real and monetary circuits of the country is one of the elements of Iranian strategy. From 1908 to the present day some 140 billion cubic metres of natural gas have been used.¹⁴. In addition to the

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11. International Finance Corporation, Potential for private investment in the Petrochemical Industry in Iran, Washington, 1961, 160 pages.
 12. The initial investment was in the order of \$240 million.
 13. These two groups were established in 1969 and their initial investments were \$28 and \$ 40 million respectively.
 14. See the report of the National Iranian Gas Company, January, 1974, p. 11.

petrochemical settlement, this plan also comprised the sale of gas abroad, in particular to the U.S.S.R. ¹⁵, in order to finance other industrial investments (the steel mill at Isfahan). At the same time an attempt was made to develop the domestic use of natural and liquid gas. In 1963 (the first year of its introduction in the energy demand of the country) the consumption of natural gas was only 48 million cubic metres which represents a mere 1.7 per cent of the total energy consumed.

Its subsequent use increased rapidly with annual growth rates in the order of 50 per cent, and in 1973 one billion cubic metres were consumed. Using an annual growth rate of 35 per cent it is possible to calculate that gas consumption in 1983 will reach 17.5 billion cubic metre¹⁶. Note that this forecast is based on the past 1963-1973 trend and is therefore an underestimation. The impact of the new petroleum regulations (which come into effect in 1974) on the distribution and production structure of the industry will give rise to increased consumption and a higher annual growth rate. The investments made by the N.I.O.C. in order to extend and improve its domestic network, especially in the rural areas (through the intermediary of rural co-operatives) must also be taken into account¹⁷.

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15. From 1 October, 1970, to the end of September 1973, Iran had supplied the U.S.S.R. with some 98 billion cubic metres of natural gas (op. cit. (14)), p. 27.
16. According to forecasts made by the National Gas Company, in 1977 it will be providing almost 20 per cent of the country's total energy requirements.
17. The N.I.O.C. report for 1972 points out (p. 9) that the growth in consumption of all oil products excluding gas was 10.1 per cent in 1972, whereas the annual growth rate in the rural areas reached almost 17 per cent in relation to 1971.

To conclude, an analysis will be made of the important aspects of the domestic policy. In the international arena unilateral measures may be distinguished from cohesive measures by the agreement of all the oil-producing countries. Because of its historical, geographical and economic situation, Iran adopted a unilateral strategy both before and after the formation OPEC. We shall now mention the series of agreements which improved on the original agreement of 1954 which was eventually replaced by the agreement of 31 July, 1973. These included SIRIP, IPACO, LAPCO, IMINOCO and SOFIRAN¹⁸.

Following the same principle as that of the agreement of the ERAP group, two other contracts were drawn up¹⁹, one with 5 independent European oil companies²⁰ to create EGOCO, the other with the CONTINENTAL OIL COMPANY establishing CONTRAN. In the case of EGOCO, the agreement set out terms regarding the future sale of oil: if commercially sufficient quantities are discovered, EGOCO can buy 45 per cent of the total if the daily production is less than 275,000 barrels, and 30 per cent if the daily production exceeds this amount. In the case of the contract with the Continental Oil Company, the same principle applies regarding the sale, but there is in addition the qualifying clause that all expenses incurred in the exploitation will be reimbursed at a rate of 10 cents per barrel if an exploitable amount is discovered.

A study of the changes over the last 20 years shows that a revision of the terms of the 1954 agreement in Iran's favour has been a constant objective. Preparation for the Fourth Plan (1968-1973) finally made the rulers of the country resort to the oil revenues in order to finance the anticipated investments. As a result, an order was gi-

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18. For particulars of the geographical regions of each company, see *Oil in Iran*, op. cit., pp. 62-63 (map).
 19. The details of these contracts were taken from those granted initially to the Consortium in 1954.
 20. The companies are: ERAP (32%); AGIP (28%); HISPANOIL (20%); PETROFINA (15%); O.M.W. (5%). See *Le Monde*, 15 February, 1969.

ven for a 20 per cent annual increase in production, so as to obtain an increase in the revenues. This ruling and this 'pro-production' strategy were also introduced because the country's income per barrel had been showing a tendency to decrease since 1958²¹. It was finally on 12 May, 1969, that a compromise was struck according to which the companies agreed to produce high quality oil and to put forward a sum of money to cover the costs involved²².

Recent history shows that the Iranian economy is undergoing a period of rapid growth. Consequently a compromise such as that of 1969 was only a short-term solution to the specific problems then in existence and is only of historical interest. Whilst preparing and making the necessary financial provisions for the Fifth Plan (1973-1978) it was important to calculate the amount of available funds. The initial version of the Plan required an amount of some \$32 billion, of which rather more than two thirds (\$22.05 billion) were to be provided by the oil revenues. To make up this amount Iran had already completed a barter agreement with Russia concerning the sale of natural gas in return for the building of factories in Iran.

In the light of the dimensions of the envisaged programme, it was once again necessary to revise the 1954 agreement with the consortium. As a result a new agreement was reached on 24 May, 1973, which nullified and replaced the 1954 agreement. This new agreement was approved by Government and became law on 31 July, 1973²³. A detailed analysis of this agreement should be the subject of a technical

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21. See M.A. ADELMAN 'The World Petroleum Market', 1973, p. 208, Table VII-2. According to this table, the payment was 86.8 cents in 1957 and decreased to 80.8 cents in 1970.
 22. The consortium also agreed to go ahead with the necessary investments to increase the capacity and the means for exporting oil.
 23. For the complete text of this law see 'Sale and Purchase Agreement', N.I.O.C. Tehran, 1973, 59 pages.

study and is outside the scope of the present paper. In short, it is possible to say that the agreement brought about the "practical nationalisation" of oil. Iran regained ownership of the oil-fields and the installations and drew up contracts with the members of the oil consortium concerning the supply of oil and the provision of services. The N.I.O.C. sells to the consortium members that proportion of the total oil production which remains after deducting the necessary amount for internal consumption and an agreed amount for N.I.O.C.'s own crude oil export²⁴.

In spite of the numerous articles of this agreement, the way was now opened for a real economic strategy on a multilateral plane and within the framework of the OPEC. This strategy took account of economic factors such as the price of crude oil, devaluation of the currency of accounting and payment, world inflation, economic programmes of the producer countries. Iran, under auspices of OPEC and perhaps influencing it, had already drawn attention to losses incurred by the devaluation of the currency of payment and accounting. As a result, the pricing problem enabled this to be a masterpiece of economic strategy. The sale by auction of 12 million tons²⁵ of crude oil by the N.I.O.C. at the end of 1973 showed the extent to which the market was dominated by the supply which was in the hands of the producer countries. The Geneva Conference held at the end of 1973 and the Washington Conference of 11 February, 1974²⁶, and their consequences illustrate that the trend indicated by this sale was connected to a very real situation in the world economy and the forces which caused it. Any plans made either by the consumers or the producers (under the

24. For details regarding this amount, see Article 2 of the agreement.

25. The buying price varied from 16 to 17 dollars a barrels.

26. See the Washington Energy Conference, U.S. information service in Tehran, March, 1974, 32 pages.

auspices of OPEC) could not deviate far from such a trend²⁷

The real aim of the oil policy, apart from the pricing policy, is to work the N.I.O.C. into the various technical and commercial enterprises. In addition to participation in South Africa and in a refinery and fertilizer plant in Madras (India), present and future plans in Greece, Australia, Federal Germany, and even Senegal²⁸ must also be taken into consideration.



CONCLUSION

Without entering into too much detail, the following remarks clarify the basic trend of the domestic oil policy of the country. In the first place, the priority given to the agricultural sector deserves special attention. A fundamental objective of this policy is to take steps to

27. In the long term, the policy of replacing oil by another source of energy might prove a possibility. But in this respect there are still too many unknown factors, not to mention the very rapid increase in the consumption of energy of all the economies (especially those of the developing countries).
28. There is talk of a 20 million ton refinery at Dakar (see Le Monde, 10 and 11 February, 1974).

deal with the inequality existing in the rural sector²⁹. Not only does this measure need to be integrated within the general agricultural policy, but it also needs to be co-ordinated with the investment policy and the price of electricity. The content and details of this measure demand technical research and will constitute an effective method for bringing about equality between the urban and rural incomes.

Secondly, although recognizing the technical characteristics of refining, this provides a means for the creation of value added in the oil sector of the country. The Abadan refinery has been and still is dominant. It was only in 1968 that the refinery in Tehran was constructed and other refineries are now planned (Shiraz, Mashad).

Thirdly, the problem of the domestic price of oil and petroleum products remains unsolved. Should anti-inflation motives, industrialisation, welfare, or purely economic criteria be taken into account in arriving at a solution to this question?

Research carried out by the oil industry seems to provide an excellent opportunity for advances to be made in the science and technology of the country. In this respect real progress continues to be made³⁰. It seems, however, that a broad application of this research policy would result in the creation within the country of a very advanced and relatively varied scientifico-technical base (chemistry, petrochemistry, new textiles, mechanics, etc., not forgetting research on the environment). With the economic integration and technical progress of oil in the national economy, this policy will provide the best medium for the estab-

29. In 1972, almost 55 per cent of the natural gas was consumed in Tehran, Isfahan, Ahvaz and Alborz (see the reports of the N.I.O.C and the Gas Company for 1972, pp. 27-29 and p. 9 respectively).

30. A look at these efforts may be found in Oil in Iran, op. cit., p. 93 etc.

lishment and propagation of technical progress and innovation.

Precisely because of the advanced and sophisticated technology of the oil industry all foreign policy must be worked out in an environment of co-operation and interdependence. Iran's 1973 agreement illustrates the necessity for this co-operation. There is an economic link behind the common interests of the producers and the companies. The two groups compete with the inland revenue of the consumer countries³¹ and their alliance would seem a natural consequence. There remains, however, the important problem of the price of oil, fixed by the producers either individually or collectively (OPEC). The market is

31.. 1.	Composition of the unit cost of oil products in Europe (1971)	
	1. Production costs	2%
	2. Refining	5%
	3. Transportation	10%
	4. Taxes and Royalties of the producer countries	11%
	5. Commercialization	21%
	6. Profits of companies	4%
	7. Taxes of the consumer countries.	47%
		<hr/>
		100%
		<hr/>

being re-established in order to justify and explain this price. This is highly commendable. But in order to analyse the price of oil is it not the outcome of forces and recognizable plans such as professional organization and revenues of innovation and position³²?

In addition to justifying the raising of the posted price, there is also the problem of how to use the revenues thus released and the question of the resulting capital movements. The problems which have been and will continue to be posed illustrate the multi-dimensional nature of the problems of the monetary and financial aspects as well as the economic aspects. These include the plan of internal absorption of this revenue - the capacity of absorption of the economy - and aid to the poor economies of the Third World certainly deserves to be given priority and detailed research.

31. continued.

2. Analysis of the price of a litre of high octane petrol in France (September 1973)

	centimes	%
1. Production	0.01	1
2. Refining	0.12	9
3. Transportation	0.08	6
4. Commercialization	0.15	11
5. Revenues of the producer country	0.09	6
6. French tax	0.90	67
Total in francs	1.35	100

This does not take account of the integration which could exist between the various functions.

32. For a good analysis of the structure of the oil market see M.A. ADELMAN, op. cit., parts 2 and 3.

IRAN'S REVENUES FROM OIL SINCE 1920

Year	Receipts Million ₪	% Change
1920	0.6	
1925	1.1	80%
1930	1.3	70%
1935	2.2	70%
1940	4.0	80%
1945	5.6	40%
1950	16.0	180%
1955	32.2	100%
1960	101.8	220%
1965	183.6	80%
1970	462.2	150%
1971	771.3	70%
1972	1262.3	63%

ANNEX B
Production of Oil in different Regions and Iran (Million tons and %)

	1860	1880	1900	1913	1920	1930	1940	1950	1960	1972	
North America	Quantity %	0.07 100	3.6 88	8.7 42	37.1 71	81.4 87	130.5 74.6	190.5 65	284.4 54.3	372.8 35.5	614.5 23.6
South America	Quantity %			0.04 2	0.33 0.6	0.71 0.8	16 9.1	38.5 13.1	91.9 17.2	193.2 18.4	248.7 9.6
Middle East	Quantity %				0.27 0.5	1.77 1.9	6.7 3.8	15 5.1	88.3 16.5	272.5 25.9	1066 41
(Iran)	(Quantity) (%)				(0.044) (0.08)	(1.406) (1.5)	(6.5) (3.7)	(9.3) (3.2)	(32.26) (6.1)	(52) (4.9)	(254) (9.8)
U.S.S.R.	Quantity %		0.41 10	10.4 51	8.6 17	3.5 3.7	10.8 6.2	30.2 10.2	37.8 7	147.9 14.1	394 15.2
Others	Quantity %		0.82 2	1.4 6.8	5.7 10.9	6.2 6.6	11 6.3	19.4 6.6	26.2 5	64.6 6.1	275.8 10.6
Total	Quantity %	0.07 100	4.83 100	20.54 100	52 100	93.58 100	175.0 100	293.6 100	528.6 100	1051 100	2599 100