CHAPTER IX

CONCLUSIONS

The OPEC member countries command a substantial proportion of world oil reserves. OPEC's share of the world's proved oil reserves stands at nearly seventy six per cent. This makes OPEC member countries capable of negotiating from a strong position in oil matters and face the international energy agency (IEA) in future.

As far as production is concerned, OPEC's oil production was about one third of the world's oil production in 1987. OPEC member countries, therefore, have to determine and organize production on the basis of their present and future requirements.

Oil is the most internationally traded source of energy. About 80 per cent of produced oil is traded internationally. In the field of crude oil exports, it was found that the OPEC's exports of crude oil formed the highest share in the world (54.20 per cent in 1987) because of the natural advantages arising out of its great reserves, low domestic consumption, the availability of economic capabilities, capital investments of OPEC and the technical abilities especially those concerning oil production.

OPEC's oil consumption is only 5.52 per cent of world's oil consumption in 1987. Although oil is available in great quantities in OPEC, its per capita energy consumption in general and oil consumption in particular and also its share is still very low as compared to the share of the per capita in advanced countries. OPEC's average per capita energy consumption and that of the United States is in the ratio of 1 : 10. Therefore, the OPEC member countries may should strive to raise their level of developmental activity so as to raise the average per capita oil consumption in the near future. At the same time, the per capita level of energy consumption by
the non-OPEC advanced economies of the world needs to be brought down through appropriate readjustment policies.

OPEC is the most important area in the world so far as gas reserves are concerned. These gas reserves are of two kinds, with and without oil. The geological investigations and surveys of earthquakes indicate that there are probably much more gas reserves than what is presently known. It is estimated that OPEC possesses slightly more than one-third of world's natural gas reserves.

The development of gas production in OPEC has passed through the initial stages of waste and stagnation mainly because of the slackness in the interests of foreign companies. Its production needs greater investments while its profitability is lower as compared to that of oil. Now a days gas is considered to be one of the main energy resources, next in importance to oil. OPEC produces only 9.49 per cent of world's production of natural gas. The governments of OPEC member countries should reduce the flaring of associated gas.

Recently natural gas has become an important resource of energy. Of the World's production of gas, around 17 per cent is traded internationally. In the context of gas exports from OPEC member countries, it is not in the desired quantities. It reached the highest i.e., 21 per cent of world's gas exports in 1985. The most prominent exporting countries in OPEC are Indonesia followed by Algeria.

On the basis of gas consumption estimates show that OPEC's gas comes second in consumption after oil. It forms 42.17 per cent of the OPEC's energy consumption. OPEC's gas consumption was only 7.05 per cent of world's consumption of natural gas.
Based on the existing knowledge, the period of exhaustion of oil is 39 years for OPEC, and that for non-OPEC countries is 10 years from the end of 1987. There is expectation that under these circumstances during first decade of 21st century, pressure for increasing oil production on OPEC shall rise substantially because non-OPEC countries which are presently exporting oil will also start importing oil. Consequently they will be in a better bargaining position in international market as far as oil is concerned and the crude oil prices will become much higher. However, if there is no new oil discoveries, one of the very dangerous possibilities is that oil reserves of OPEC may deplete so rapidly that they may be exhausted before the expected period. To the extent possible, such an eventuality has to be postponed through adoption of appropriate oil policies both in the oil producing and consuming countries.

The dynamics of oil production and exports have important repercussion for international relations. The importance of oil for international relations stems from its continuing ability to meet a considerable percentage of world’s demand for energy in the visible range of time. All expectations, even those that aim at reducing the importance of oil, accept that oil shall continue meeting about 40-50 per cent of world’s demand for energy outside the former central planned economies (CPEs) till the end of the present century. Its consumption will be around 58-60 m.b/d by the year 2000 showing an increase of 6-8 m.b/d in comparison to 1990.

There are definite observations from our study which are important from the point of view of sustain ability of industrialization in the developed and the developing countries. The appearance of new processes and increased use of oil and its derivatives in usages other than energy such as in petrochemicals and other related products, will undoubtedly lead to increase of oil consumption. From another
angle, some of the non-OPEC countries with limited oil reserves follow production policies that are characterized by speeding exhaustion of reserves, as in Britain and the United States. All this shall have a negative impact on the levels of their production which would lead to the inability of these areas to compensate for their exhaustible reserves. Accordingly, their production shall gradually decrease with the lapse of time, for the remaining reserves cannot support current production levels. Despite that, some countries - the developing countries of the non-OPEC in particular - may continue to make available the present requirements to develop its oil alternative in payment for imports.

In view of increase in local consumption in the former CPEs and the recent developments regarding their opening the doors to the outside world, as well as on account of production problems in the former Soviet Union, it is expected that the former CPEs net exports of oil may decrease. Accordingly, it may be that countries whose supply of oil comes from the non-OPEC bloc shall stagnate in the short run. This problem may be compounded by the decrease of production levels in the United States since 1986 resulting is a further decrease in the supply of oil from the non-OPEC countries. Accordingly, the expected increase in the demand for oil shall in a large measure, be transmitted to OPEC. Based on these presumption, the demand for OPEC's oil is expected to increase to about 29-30 m.b/d in the year 2000. This would increase OPEC's share in the world's supply. Similarly, we can expect an increase in the consumption need from about 45 per cent in 1989 to about 55 per cent by the year 2000. In this way, the role of OPEC in the international oil market shall increase accordingly so as to occupy a dominant position. This may reinforce OPEC's status and its efforts in stabilizing the market.

In other words, the enhancement of OPEC member countries participation in
the external supplies as well as domestic consumption shall inevitably have a positive impact on the OPEC's capability to reinforce its control over market developments. Accordingly, it is expected that oil market in the future shall have more stability and cooperation among the reacting forces and that role and status of OPEC in the international oil market shall get reinforced.

We have divided OPEC member countries into two groups: In the first group are included those countries in which agricultural sector plays an insignificant role. To this group belong Kuwait, Libya, Qatar, Saudi Arabia and the United Arab Emirates. In the second group industrial activity sector predominates but contrary to the first group agricultural sector plays a significant role. In this group fall countries such as Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Nigeria and Venezuela. The share of agricultural sector has fallen and that of industrial activity sector has risen in all OPEC member countries except Gabon where the share of agricultural sector is seen to have risen marginally. It is also seen that GDP following the industrial activity sector continues to rise up to 1980 and beyond that it starts decreasing. Thus, we can infer that GDP pattern depends upon industrial activity sector.

In all OPEC member countries growth rates of GDP have fallen continuously. However, in some countries such as Algeria and Iraq growth rates rose throughout the period 1975-80 compared to the period 1970-75. Again, while growth rates of some OPEC member countries are low but positive, in other OPEC member countries growth rates during the same period even become negative. The countries which show positive growth rates during the period 1980-85 are Algeria, Ecuador, Gabon, Indonesia and Iran. On the contrary the remaining OPEC member countries registered negative growth rate throughout the same period. Consequently, it is clear
that GDP is greatly influenced by industrial activity sector. When the latter increases whole GDP also increases and vice versa.

On the basis of net factor income, the OPEC member countries can be divided into two categories. First of all we have those countries whose net factor income is always positive. The countries are Ecuador, Indonesia, Libya and Nigeria. Remaining countries constitute second category whose net factor income is sometimes positive and at other times negative.

The development experience of the OPEC member countries seems to have special relevance to the concept of economic dualism. In the light of development experience of present more developed countries (MDCs), dualism often implies the coexistence of the modern (industry) and traditional (agricultural) sectors in which the latter plays a significant role by generating surplus necessary for the process of economic development. Incorporated in the writings of Lewis, Fei-Ranis, Jorgenson, etc., the developmental activity in this approach is endogenous. On the other hand we have models of unbalanced growth, such as the one advocated by Hirschman. These are based on the principle of simultaneous existence of the modern and traditional sectors, but in this case the former is responsible for driving the economy towards the stage of sustained growth. This approach of economic dualism can be called as exogenous. In both the cases the modern and the traditional sectors embody dual characteristics in terms of their roles towards GDP, capital formation, employment, factor productivity and factor intensity. Keeping this framework in mind, we have analyzed the state of economic dualism in the OPEC member countries. Our analysis shows that the member countries of OPEC experienced a varying and mixed response to economic development in terms of the endogenous and exogenous explanations of dualism mentioned above. A few countries of the sample such as
Gabon, Iraq and Venezuela who had rich heritage of agriculture can be put in the endogenous category of dualism. Besides, all the OPEC member countries had a large oil sector which was invariably foreign dominated and capital-intensive. Hence, the oil sector has been working as a leading sector providing growth stimuli to rest of the economy. It is no wonder, therefore, that the share of oil sector in GDP and employment has been rising continuously as already demonstrated by our analysis. The process of transformation of the OPEC member countries is also clear by looking at the changing patterns of productivity and intensity of labour and capital respectively. Analysis of economic dualism in the OPEC member countries shows that the traditional and the modern sectors though interdependent, are far from being integrated into their respective economies.

We should caution that oil being a primary commodity is subject to the uncertainties of the market. This is amply clear from the adverse effects experienced by the OPEC member countries caused by the worldwide recession of early 1980s. In such a situation the role of national governments becomes very important. Special efforts have to be made not only to protect these economies from such uncertainties (including the external influence on domestic output, employment, investment etc.) but also to ensure that the long-term benefits of the oil sector are completely funneled into the domestic economy.

In order to understand the structure and growth of an oil exporting economy, we have undertaken input-output analysis of Iraqi national economy. On average, the results show that the exports of primary products such as crude oil from Iraq do not have a significant effect on the rest of the economy. In addition, the analysis provides an insight into the pattern of interdependence among various domestic sectors of an oil exporting country. In the case of Iraq we observed that ten out of
thirty eight sectors had very high forward linkage effects.

It should be made clear that 1982 was the year when Iraq was faced with the first Gulf war. The backward linkage effects of the Iraqi oil industry are expected to change slightly in the future, but this change in oil industry may not be too much in terms of its technological and capital intensity.

On the other hand, the forward linkage indices of the oil industry in Iraq are expected to grow up to some extent and to be more attached to the domestic productive sectors. The oil export from Iraq was mainly in the form of crude oil (i.e., constituting 99.85 per cent, while the refined products constituted 0.15 per cent of the petroleum export). A low backward linkage index (0.54033) and a higher forward linkage index (3.95831) of the crude oil quarrying illustrates that this sector is not integrated to a great extent with the rest of the economy.

Our analysis of comparison between the linkage indices with and without imports shows that six out of ten sectors are affected by the inclusion of imports whereas, the rest have remained unaffected.

The regression study focusing on the possible determinants of the demand for energy suggests that the level of energy consumption has a positive relationship with two important variables, namely, GDP and size of population. The exercise based on the current prices also suggested that the relationship between energy consumption and the two independent variables was better in log-linear than in the linear form.

The future values of GDP and size of population were also projected with the help of past temporal trends. These projected values when substituted in the log-linear relationship gave projected values of energy consumption for OPEC. Our
projections of the energy consumption were found closer to the values projected by OPEC secretariat only when we used the growth rate method.

The estimation of energy consumption discussed above have important implications for future programmes of development and growth in the OPEC. The oil and gas which formed 97.19 per cent of the total energy consumption in 1988 have been the major resources of energy. These resources are exhaustible and will finish sooner or later. However, the future energy requirements of OPEC are likely to increase in a big way because OPEC member countries are, in general, still economically underdeveloped, and it is especially true of their industrial sectors. We, therefore, have to take several measures regarding the future production and consumption of this exhaustible resource of energy. The measures may include steps to economize the use of conventional oil and gas and replace them by non-traditional forms, especially the renewable resources which are available in OPEC member countries like Hydro and Solar, in addition to Nuclear and Geothermal. The replacement of the present energy resources is imperative in order to meet the future requirements. If not, the OPEC member countries may have to face a great setback and may, in future, be obliged to import energy from other parts of the world.

In the present study the importance of oil sector in OPEC member countries is brought out by looking at the proportion of petroleum exports to GDP which rose twofold for the period 1972-74, declined in 1980 and 1986, but increased again in 1989. Similar is the case when we examine the share of petroleum exports in GNP. The dominant role of oil sector in OPEC member countries can also be seen from the proportion of non-petroleum exports in GDP as well as in GNP. Excepting the periodic fluctuations, this proportion remained more or less insignificantly constant over the period 1972-89 for the aggregate OPEC. The composition of OPEC's
exports also brings out the importance of petroleum exports. The petroleum exports as proportion of aggregate OPEC's exports remained 70 per cent in 1960 but increased to 77.29 per cent in 1989.

To what extent the OPEC member countries depended on rest of the world can be seen from the proportion of imports in GDP as well as in GNP. OPEC's imports as a proportion of GDP declined for the period 1972-89. OPEC's imports as a proportion of GNP also declined for the period 1968-89.

The main factors affecting exports as well as imports of OPEC member countries over the period 1960-89 have been analyzed with linear as well as log-linear regression techniques. In the export function analysis, in the first place export was considered as a function of crude oil price and GDP. In the second place the export is considered as a function of crude oil price and GNP. The study shows that the aggregate OPEC exports were significantly influenced by the crude oil price. It indicates that the petroleum exports mainly depended on changes in the crude oil price rather than GDP. Similarly for the aggregate OPEC, crude oil price was the main determinant of the volume of exports in both the linear and log-linear regression models.

The factors affecting the volume of imports have been captured by running linear and log-linear regression equations on GDP, total exports and crude oil price on the one hand; GNP, total exports and crude oil price on the other hand. The first import function shows that the aggregate OPEC volume of imports mainly depended on the growth of GDP and total exports, not on crude oil price. Similarly in the second import function GNP and aggregate exports have emerged as the main determinants of the volume of imports in the aggregate OPEC over the period 1960-89.