a comprehensive dialogue between producers and consumers of crude oil has an unquestionable important place for the realization of which no opportunity should be missed

ofIIES, gave his lecture on energy charter treaty. He began his discussiongiving a short history of energy charter treaty (ECT).

Then, he mentioned the main objective of ECT: "Purpose of the "Energy Charter Treaty" is: to establish a legal framework in order to promote long-term cooperation in the energy field, based on complementary and mutual benefits, in accordance with the principles of the Charter".

And he added that a wide range of energy related issues and aspects, including: Investment, Trade, Transit, Efficiency, and Environment are thus covered by the ECT.

On a future Iran-ECT relations, Hendi, suggested several issues to be considered. These issues are as follows:

- Energy Export Restrictions: As an OPEC member, Iran has certain commitments and quotas in exporting oil to the international markets. ECT's statue strictly follows GATT's regulations with respect to an unlimited access to " open and competitive energy markets, materials and products".
- Dual Energy Pricing: There is a dual (domestic and international) pricing system for energy products in Iran and some other energy exporting countries. Such dual pricing has been challenged by European Union, U.S.A and, by far, the WTO, as being a distortion of free trade.
- Energy duties and Taxes: Petroleum exporters, on the other hand, see the heavy duties and taxes on crude and oil products exerted by the energy consuming countries, as a major barrier to free market access to energy, and consider it contrary to the ECT and WTO rasion-detre.
- Manipulatory Tendencies: Through their economic stamina and commercial weight, industrial countries tends to manipulate international organization, and get their interests through. Major energy exporters, which are expected to supply an increasingly important share of world energy exporters, which are expected to supply an increasingly important share of world energy exports, may also tend to exert their influence in the world energy markets. Iran should avoid joining the second group, while encountering the tendencies of the first kind.
- Investment Rights Interpretations: Article 10 of the ECT Statute requires " fair and equitable treatment" as well as "most constant protection and security" , with respect to investments in a contracting party's territory. Energy prone state like Iran, which more often host international investments in their energy sector, should closely watch any misinterpretations on the ECT provisions, which may endanger their interests.

Finally, he put an end to his discussion by the following concluding remarks: "The Energy Charter Treaty is a rapidly expanding international organization, and almost no country would benefit from staying out of it. Many energy exporting countries have jointed ECT as full members, while a number of OPEC and GCC member states, have approached ECT in the form of an "observer", i.e., while taking no commitments as an ECT member, have provided themselves with enough time to follow closely the ECT process, and further study their proper relations with the Treaty. Iran can also take a similar position."

Next topic, Persian Gulf and Caspian regions, was presented by **R. Fathollahzadeh, Researcher of IIES.** In this paper he tended to examine the role of Caspian Region and Persian Gulf in international Energy Markets. He attempted to establish an analytical framework to elaborate the role of Caspian Sea's oil export besides examining the dominant role of Persian Gulf. First he argued the discrepancies among estimates in regard to the proven reserve in the Caspian region.

Later, he discussed the consumption patterns and export capacities of the Caspian region.

"All countries in Caspian Sea and Middle East regions are in a development transition stage. In other word, the energy intensity in these countries would be increasingly for at least the next decade. This is mainly because of development of energy intensive industries e.g. oil and gas industries, population growth, and development of uiban areas in the Caspian Sea region. Intuitively, it is expected that oil consumption of the emerging economies of the region would be much more than EIA/DOE forecasts" they said. Fathollahzadeh concluded his discussion with the following remarks:

"We came to the result that domestic energy demands of the emerging economies of the Caspian region would be increasing and the contribution of the region could not be realized in the International oil markets. The main reason behind this result is that the Caspian Sea countries are on the beginning steps of development and the oil consumption trend of the region is expected to increase more than current projections."

■

players change. Over the last 20 years, the Big Four consumer- China, India, Japan, and Korea- have accounted for a little over 70% of total oil demand in the Asia-Pacific region. This is expected to remain roughly the same in the future, but the positions of the countries within the Big Four are changing rapidly". Finally he concluded that the outlook for the next decade sees demand in Japan as being relatively unchanged, and a leveling off of growth in Korea as the economy matures. The potential for expansion in China and India, on the other hand, remains significant, and the relative positions of these players are likely to change. Indian oil demand will overtake Korean demand in the next few years, and China's demand is likely to exceed Japan's sometime after the middle of this decade."

In the second part of his speech- Asia-Pacific regional crude oil supply and trade outlook- Dr. Fesharaki elaborated on oil demand situation in the region. He concluded that for 2000, the projection for non-OPEC oil production increase is estimated at 1.2 MMBD, higher than the projected world oil demand increase of 960 MBD.

Dr. Fesharaki put an end to his speech by the following concluding remarks: The variation of world oil prices and its correlation with the Asian economic crisis has proved that the impact of the Asia-Pacific region on the world oil market is significant. Such impact, though not as strong as in the past, will continue over the next ten years and beyond."

Next speaker, **Dr. M. Nematollahi, senior researcher of IIES**, focused his discussion on oil and gas routs in the Caspian Sea region. He started his speech by explaining political and economical situation of the region. He said: "since the 1973 oil embargo and the Persian Gulf war, the industrialized nations have been continuously trying to diversify their sources of energy, oil in particular. The collapse of the former Soviet Union and the establishment of the Independent States in the Caspian Sea region (Central Asia and the Caucasus) with significant oil and gas resources,in Kazakhstan, Azerbaijan and Turkmenistan, was a global opportunity for the west and specifically for the United States, to diversify even further, their sources of energy. The United States tried to give the world an exaggerated estimate of the energy resources of the Caspian Sea Region for two major reasons. First, to diminish the significant role of the Persian Gulf as a major source of energy in the world economy. The second reason was to diminish the influence of Russia over the newly Independent States and to increase its own influence in the region by persuading major American oil companies to invest in the oil and gas rich countries of the CIS and the Caucasus."

Later on, he tried to introduce two opposite sides regarding the Caspian oil: "On one side, Russia is still trying hard to keep its political and economical influence on these republics and is willing to play a role in the transportation of oil and gas of these countries.

On the other side, the United States and its allies in the region and to some extent Europe, are utilizing their best efforts to diminish the influence of Russia over these countries and are planning to sharp the export routs of the oil and gas of the region in such a way that they will be secure from the Russian influence and control", he said.

In conclusion, he mentioned the following facts as disadvantages of the Caspian oil and gas in comparison with the rival regions oil and gas:

- The Caspian Regional's oil and gas are more costly than those of the Middle East The existing regional infrastructure and pipeline networks are not adequate for transportation of future oil and gas production to the world markets.
- At existing gas prices, the International Banks and financial institutions are not willing to invest in gas pipeline projects.
- The decision on the main oil and gas export pipeline route selection will have to wait until the region shows signs of more political stability.
- Lifting of American sanctions against investment in Iran's oil and gas industries, will be a relief to the major oil companies involved in the region's oil and gas agreements.

Next speaker, **M.R. Shamamasi, managing director of KEPCO**, focused on technical aspects of the Caspian region oil dealing with the problems of exploration and production. In his speech, Mr. Shammasi claimed that: "Except for the specific reserves with long exploration and production history, most regional forecasts for oil and gas in the Caspian should be considered rather "subjective". And, of course, it is the drilling operation which is the final arbiter in determining the H/C potential of an exploration area."

Then he concluded: " we believed that instead of basing its related projects on receiving oil and gas produced by others, Iran should expedite its own development and production of the prospects identified in the South Caspian to feed its northern refineries. Productivity improvement and saving resulting from such new scheme would improve the economics of Caspian development projects."

Issues and Potentials of Oil

This session was the last one held in the conference, however not the least. First, **S. Hendi, Senior Researcher** adapt independent strategies."

Finally, he concluded his discussion in this way: "No doubt, a comprehensive dialogue between producers and consumers of crude oil has an unquestionable important place for the realization of which no opportunity should be missed."

Geopolitics of Oil and Regional Development

Yoshihiro Sakamoto, the President of the Institute of Energy Economics, Japan, was the next speaker. He started his speech, by the following remarks: "The crude oil price level of $10/barrel has caused heavy damages to finance, economy, employment, and social stability of oil-producing countries, or brought a fear among those countries that irretrievable damages would occur. On the other hand, the unusually high levels of $37/barrel as well as the high speed with which crude oil prices soared have threatened the people's daily living in oil-consuming countries, thus bringing social unrest and turmoil in some countries. Such state of affairs in which oil-producing and oil-consuming countries are alternately hit by economic and social unrest as witnessed in recent years should not be repeated.Otherwise, it would jeopardize the base of sustainable growth of global economy."

He continued: "On the other band, this means that the East Asian region is an definitely important market for the West Asian region and the latter's prosperity is dependent on the size of the East Asian market and the pace at which the market grows."

At last, he concluded that: "In an effort to find a clue to a new world order in the wake of the end of the Cold War, some people advocate the "Clash of Civilizations," but I personally feel greater sympathy toward Iranian President Khatami's "Dialogue Among Civilizations." Given the current world interdependence with one another in respect to energy centering on oil, the spirit of the "Dialogue Among Civilizations" should be exhibited in the world of energy."

Ali Granmayeh, from University of London, was the next speaker, giving his speech on "Reconciliation and Development in the Persian Gulf and the Caspian Sea".

He began his discussion with a brief introduction to the current situation of both regions. Then, he elaborated on some suggestions for the legal issues of the Caspian Sea. He said:

- The Caspian Sea shall be considered as a sea and divided into national sectors according to the Un-approbated Law of the sea; or shall be considered a lake and an exclusive case of the international law.
- The Caspian Sea is the common property of Iran and the successor states of the former Soviet Union, in line with the Soviet-Iranian treaties of 1921 and 1940, unit a new treaty, adopted unanimously by the littoral states, has replaced them. According to observe all the international agreements which the Soviet state had signed previously.
- The Caspian Sea shall be divided according to a new agreement and on the principle of a median line between the marine territories.
- The sea-bed of the Caspian Sea shall be divided for energy operations but the surface shall remain common property for the navigation and other purposes.
- The Caspian Sea shall be divided on the basis of a median line, but allocating an extra share to those countries which had been operating in areas beyond the median line under the Soviet-era Economic Zones.
- The Caspian Sea resources, and not the Sea itself, shall be dividing into five equal portions.

However, Dr. Granmayeh referred to one argument as a major one, and concluded: " The major argument, since 1991, was whether or not a littoral state could take unilateral action in a part of the Caspian Sea without the consent of other concerned parties. Nonetheless, good will prevailed and those who objected to operations before the clarification of the status of the Caspian Sea, have never caused trouble for the opposite side. On the contrary, all sides have worked together in certain energy projects while maintaining their legal position and resuming negotiations for a comprehensive solution."

Revisiting Caspian Region oil

This session was held on the second day of the conference, and several speakers from Iran and other countries gave their lectures on the Caspian region oil and the relevant isuues. First speaker, **Dr. F. Fesharaki, Director of East-West Center**, spoke about Asian oil demand and the Middle East supply giving his comments on the issues. He divided his speech into three parts: In first part- Global and Asia-Pasific regional oil demand outlook- he began describing the global demand situation. He said: "It is quite clear now that the impact of the Asian financial crisis and the region's declining oil demand in 1998 on the world oil market was significant and can help to explain some of the fluctuations in world oil prices during the past two years.

Following his speech he forecast that: "Over the coming decade, our projections see increases in oil demand across the region, though at slower rates of growth than in the past."

And, then he continued: "The volumes added may be similar to those in the past, and there may not be major shifts in the pattern of demand by product. A significant change in the Asian oil market is underway nonetheless as the roles of the various

transfer 370 MBD cacasus and Central Asian oil to the world markets through 32 inch Neka-Ray pipeline. He added: "Tehran, Arak, Tabriz and Isfahan refineries in the North and Center of Iran with 680 MBD capacity are able to refine cacasus and Center Asian crude oil."

Finally, he introduced Iran as the most convenient and economical transfer the Caspian oil to the global market, considering its strategic geological situation in the region, and expressed Iran's readiness to collaborate with the region's governments in this regard.

G.H. Hassantash, the president of Institute for International Energy Studied, gave his speech on American policy regarding energy security in the Persian Gulf. He started his discussion by giving a short history in this regard.

He said: "After the first oil shock of 1973 (regardless of the real reasons behind it) and the ensuing formation of "International Energy Agency (IEA)", the policies of which entitled the U.S to keep a finger on its pulse, Europe and Japan sat passively aside allowing America take care of their energy security. The U.S, with vast domestic resources and across its borders, was naturally less susceptible to any eventuality and could therefore easily afford to tie up the issue of oil with that of its strategies planned for political and military expansionism. In the bargain practically ignoring the interests of other members of IEA."

Then he dealt with the aspects of IEA policies. He pointed out: "It is not intended here to pass judgement on all aspects of the policies but few:

- American policy has been in the direction of mitigating dependence on the oil of Persian Gulf. This policy has been inextricably intertwined with the U.S. policy of powerful presence in the region. . The prevailing situation and all forecasts for the next two decades indicate that the U.S policies for the area haven short sighted. For, the global need for the Persian Gulf energy resources is on the rise, while the stumbling blocks, to meet the future world demand, are many.

- The real prices of oil were kept low for a considerable period (more than fifteen years). This along with price fluctuations plus the formation of other lucrative investment opportunities, managed to prevent the needed capital investments in time for the aging oil industry worldwide. Although for the past year and half the prices have gradually attained an. acceptable level, nevertheless, currently certain irrational conducts combined with contradictory statistics and reports have deprived the global oil industry of making determined decision on very basic investments.

- The unwavering opposition of the U.S to a serious dialogue between producers and consumers, particularly about crude oil pricing mechanism, has forestalled well coordinated and rational decisions for ensuring a long term secure supply of the global need for oil. Realization of which requires cooperation rather than destructive rivalry.

- The U.S led oil embargoes against some nations along side imposition of limitations on some others, based on the said policy, have stopped the energy potentials of those countries from actualization. Which in turn has deprived the world of secure supply.

- And finally the expansionist strategies of the U.S, based on energy resources, for the Central Asian nations have practically forestalled the optimal utilization of those, albeit limited, resources. The dictated routes for their transfer are by no means viable economically. In the past America has spared no effort in blocking all other possible routes for the purpose. Also in embargoing some oil rich countries, the U.S had intended an indirect promotion of investments in the Central Asia.

Then, he followed: "In view of the points high lighted above, a long lasting solution to the global oil market problems lies in a fundamental change in the policies of IEA. Western Europe, Japan and the majors must concentrate on convincing the U.S of the impracticality of the past policies of the Agency. And if they fail in persuading the U.S, then they must distance themselves from those methods and

The variation of world oil prices and its correlation with the Asian economic crisis has proved that the impact of the Asia-Pacific region on the world oil market is significant

"The total investment requirements of petrochemical industry through the third Development Plan is estimated to reach the level of 7, 5 billion dollars. In this period, the share of petrochemical investment in the national economy and in the public sector are expected to reach 3,9% and 10,7% respectively", he added.

He followed then "These figures indicate the importance of the petrochemical industry in the Iranian industry and economy. The growth of NPC and the increase in its production capacity were relatively gradual during the first 30 years of its operation. During this period its, capacity, increased to five million tons/year in 1992. However from the end of this period the rate of growth increased very rapidly and within 7 million years (1992-1999) reached the level of 15 million tons/annum."

He concluded his remarks with the following statements: "Considering the present and the future potentials of the South-Pars gas field, we believe that this area is an site for future development of Iran's Petrochemical industry. At present we are at an early execution stage of the petrochemical projects programmed for the 3rd phase of NPC's strategic development plan.The required feedstock will be available mainly from South-Pars gas field and party from already. Available associated gas."

Executive Session

Hossein Kazempour Ardebili Senoir Advisor to the Petroleum Minister of I.R. Iran and Governor for OPEC was the first speaker of this session.

He said: "We all have experienced that any unilateral politically motivated economic restriction imposed upon producers will impede oil resources development, harm free, threaten the smooth supply of oil and ultimately endanger the consumers interests."

"I would like to state that because of massive reserves and relatively low production costs, the largest NOCs (mainly OPEC) will continue to grow influence, because of both the natural drive to compete and the need to enhance shareholder value through lower cost operations on the part of foreign oil companies. Thus, there is a complementarity between what some of the national oil companies need such as: new technology, worldwide market access and capital investment; and what international companies need such as: association with low-cost, high-volume reserves", he added.

Then, he continued: "Furthermore, the closer relationship of energy with economic development and environment has thrown out into the open, the most critical issues mankind will face collectively. The challenge can be met by governments, producers, consumers, industries, international organizations and financial institutions working together. Producer consumer dialogue, which is a major tool for addressing this issue, has managed to gain the trust of the countries that have taken up in this process.

Finally he draw some conclusion as follows:

- The increasing co-operation between OPEC and non-OPEC as well as between producers and consumers indicates that diversification to high cost with the policy of securing the supply of crude oil is not an issue, any more.
- The need to control the final price of oil to the final consumer in order to achieve a healthy economic growth rate on the one hand and the rising cost of producing environment friendly petroleum products on the other, suggest the need for an increasing shift by major oil companies in investment from high-cost to low-cost areas.
- High crude oil production from the Caspian Sea will be much "Later" rather than "sooner".
- Iran will be a major customer and consumer of Caspian area oil and gas which will be available for exports in the coming years, either through direct purchase or swap.

Sayed Mehdi Hosseini, Director General of Kala London Co., started his speech, giving some figures and facts about Iran's oil and gas reserves, and elaborated on some agreements and projects in progress. He said that 12 month contracts exceeding $ 20 billion for the development of Iran's experience in oil production and its easy access to crude oil as one of this countries attractions for major foreign investors.

Hosseini regarded buy back agreements scheme as an efficient tool to attract foreign investment and hoped it to be able to set the stage for a new format for investments at regional and global level.

The next speaker of this session was **H.E. Mohammad Aghaie, Deputy Minister of Petroleum**, whose speech was on "transfer of central Asian oil through Iran". First, he expressed his hopefullness to have Iran as a bridge between two oil regions of the Caspian Sea and the Persian Gulf. Then he mentioned that serious measures are being taken by Iran to ensure the flow of oil towards the south. After that he explained the current capacity of refineries in the north of Iran and some plans to promote this capacity in order to meet oil products demand in the future. He followed that Iran is ready to particularly in time of weak prices."

Then, he mentioned some ways how to manage the risks. "we can also use contracting strategies, such as lease versus buy decision as for FPSOs in smaller fields to reduce the exposure to reservoir risk. We can also manage risks by taking small initial investments in riskier areas, while preseving upside options for additional future investment", he said.

And he concluded his statements with the following remarks: "The most attractive projects are not just determined by their position along the scale of returns as they appear today, but also by the position along the scale of future volatility".

However, he refered to the role of contracts in risk management in his speech. "Contracts with greater incentivisation for the contracting company would move up the chart and could be attractive, even if that involved acceptance of more risk in the areas companies are competent to handle", P. Thomas expressed.

The other speaker, **prof .A. Kemp, from University of Aberdeen** elaborated on contracts, focusing on buyback contracts vs. production sharing agreements.

Having compared the two types of contract, namely production sharing contracts and buy-back agreements, Kemp reaches to some common features of production sharing contracts and equity buyback schemes. Kemp believes:

- (Foreign) Oil Company is a contractor under both types of contract arrangement.
- Host Government retains full title to oil in the ground throughout the life of the contract.
- Host Government or national oil company can procure title to equipment etc invested in the project.

Finally he brings his speech to conclusion by the following final statements:

"Both types of contract can accommodate state's requirements to title and ownership of facilities. Oil company is contractor in both cases. Both can give host Government/national oil company very substantial control over operations. Development cost and completion risks are borne to a very large extent by the contractor under equity buyback. In PSCs host Government shares risk to a greater extent. Oil price risks are borne to a large extent by host Government under equity buyback. In PSCS contractor has relatively more risk. Reserves and production risks in equity buyback are substantially borne by contractor in PV terms in period of his involvement. Contractor may be more cost-driven in equity buyback and Less concerned with maximum field economic recovery. Contractor may not be technologically innovative in equity buyback if significant perceived risk involved."

Iran's Oil, Gas and Petrochemical Industries

The first speaker of this session, **Eskandar Bavarian, Deputy Director of NIOC Corporate Planning**, was the first speaker. He started his speech by speaking about Azadegan oil field, he said: "Iran has made its biggest oil discovery in 30 year, a giant onshore oilfield called "Azadegan" located in south western province of Khuzestan.

This field could contain 5 - 6 billion barrels of recoverable oil (about 21 billion barrels of OIP from three formations, i.e. Gadvan , Kazhdumi & Sarvak formations). Sarvak has the main oil reserve with more than 20 billion barrels of OIP."

On the development of this field, he said: "It is planned to develop this field in third 5 - year development plan for a target final production of 300 MBD and simultaneously with water injection of 350 MBD of water. Development and construction work will begin by March 2001."

Then he elaborated upon Homa gas field. He contended: "Recently another sweet gas field with the name of Homa was discovered. This field has a reserve of 6.7 TCF of sweet gas and it will be developed under Article 29 of 1379 budget law."

At last, he concluded his discussion, dealing with main NIOC projects.

He said: "Some other main NIOC projects during 3rd 5 - year development plan are as follows:

- Completion of gas injection projects including Kupal, Ramshir and AghaJari gas injections.
- Research on development of heavy & very heavy oil fields.
- Equip general heavy vehicles with CNG System.
- Underground natural gas storage scheme.
- Comprehensive reservoir simulation model studies on most of main oil & gas fields (Onshore & Offshore).
- Development of most of the independent gas fields even those discovered in recent years such as Shanul , Varavi , Gardan , Tabnak , Homa ,Tang-e-Bijar and South Gashoi.
- Installation and optimization of crude oil storage tanks at oil terminals as well as near refineries and alongside pipeline pumping stations."

Next speaker, **M.H. Peyvandi, Director of NPC Planning and Development**, said: "Iran is currently experiencing a critical stage of growth and development. One of the most important objectives in our Third Development Plan is to reconstruct the national economy based on export-oriented activities and move toward exporting industrial products instead of raw materials."

risk creates opportunities that others have steered clear of, or cannot handle correctly

economies of the two regions. It is important for us all to reflect on this perspective now and consider a joint mechanism that should make sure relations between the two regions progress towards a fair integration for both sides. The security of petroleum supplies from the Middle East to Asia/Pacific is a matter of mutual interest. Such a mechanism should foresee problems likely to arise in future and should avoid them before it is too late. Joint projects to promote a fair economic integration between the two regions should be encouraged."

AleAgha, in his speech, confirming and generalizing Shammas statements, tried to elaborate the idea in his words:

"The vast reserves in itself do not meet the demand for oil. Proper economic and timely development of these resources is essential to a fair, secure and healthy future oil market. One in which the consumers are provided with a smooth, uninterrupted and reasonably priced supply of oil and the producers are paid the proper price for their oil so that can carry out their deserved economic development. In particular they must be able to invest in other revenue generating ventures, whether in the agricultural or industrial sectors, to insure a prosperous future for the generations to come."

Then, he drew a conclusion as follows:

"The most obvious manifestation of these principals can be seen in the agreements. Oil contracts have never been and cannot ever become static. As the geopolitical realities change, so do the contracts".

Oil Industry Investment, Financing and Contracts

This session was held on the first day of the Conference. First, Prof.P. **Davis, Vice President of BP** gave his speech on "Forces driving the petroleum industry in 2001 and beyond". In the beginning of his speech, he dealt with the industrial change in the 1990s." The face and structure of the international petroleum industry has arguably changed more in the 1998-2000 period than at any time for the last 70 or so years. A series of large scale mergers and takeovers has taken place with the result that the industry is now more concentrated and is now led by three or possibly four very large petroleum companies: ExxonMobil; BP (the combination of British Petroleum, Amoco, Arco and Burmah Castrol); Royal Dutch Shell and the somewhat smaller TotalFinaElf. Of these four, only Shell has not acquired or merged", he said.

Then, he explained the reasons of such a change: "The causes of this restructuring were multifaceted. The critical factor was that the profitability of the petroleum industry had diminished and that action was required if the leading companies were to be able to continue to attract capital in an increasingly transparent equity market and to reward their shaeholders adequately. This inadequate profitability stemmed from developments within the industry rather than from any exogenous weakening of prices or margins."

Then, he added: "In terms of petroleum company behaviour, 2000 can be characterized as follows:

- Continual focus on cost reduction
- Some reduction in the number of large mergers and acquisitions
- An increase in investment
- Increased emphasis on gas"

According to Davis Petroleum companies will be operating in uncertain and volatile product and commodity markets. They will also be investing and operating in a wide range of new countries.

On risk management, The next speaker, **P. Thomas, Head of Treasury and Planning Department of Enterprise Oil PLC**, first gave some introductory explanation regarding the term of risk as he said:

"Risk can be negative, as well all know, or positive. On the negative side, we seek to minimise or mitigate losses, to protect against value seeping away, to say in control of events and to assure our investors that we are using their money wisely. On a more positive note, risk creates opportunities that others have steered clear of, or cannot handle or price correctly. So assuming risk can create value and allow us to succeed. Investors are looking for risk where they can deploy their skills, competitive advantage and capital."

Hence, he added: "For companies, risk analyses can be used as a framework for assurance that all is well, and for selecting a portfolio of assets with different characteristics. In this case, diversity, especially geographical, but also in terms of, say, the mix of oil and gas in a portfolio, can be beneficial. We can use scenario planning to think about the range of possible outcomes, for oil prices, OPEC policies and so on. We can also use risk assessments to manage overall volatility in profits, and that tends to please shareholders- and shareholder returns are highly important to us. And that is one reason why Iran's buyback contract structure can be beneficial to a company's portfolio. It spread of risks and returns is a different from the norm, especially in dampening out the impact of oil price volatility-

He ended his speech by the statements that follows: "GTL can be seen as complementary to LNG, but with a main advantage in the form of simpler product marketing and thus shorter project implementation time."

Next speaker, **Larry Weick, vice president of Syntroleum** first touched upon the technology of new fuel and its impact on oil and gas business. Such impact will be tremendous on downstream, he believes. Then he expressed the role of international regulations for marketing such fuels and highlighted the prospective weight of fuel cells in power plants. "By far, taking current environmental issues into account, cleaner fuels should be taken more seriously at global level", he said. Later on, he stressed on the importance of GTL and pointed out that Syntroleum Company was ready to provide such technology at lower prices than other reviles in the market.

Larry weick, finally, concluded that GTL business is growing increasingly and has turned into a commodity. Many companies have already initiated studies in this regard and achieved new technologies.

Oil Resources and capacities

In this session, speakers gave their speech on oil resources and capacities, and again with a special emphasis on the Middle East and the Persian Gulf. **A AleAgha, Director of PEDEC**, first started dealing with the developments of global oil markets by giving the relevant statistics:

"The basic reference forecasts for world oil demand are all indicative of an increasing trend in the next twenty years. This is much pronounced in some of the developing countries, particularly China, the South East Asian countries and the OPEC member nations themselves.

Then, he added: " On the supply side, we will see a gradual decrease from the current OECD countries, almost totally caused by the reversal of the production trend in the North Sea. Over the next twenty years, the OECD output should decline by approximately 3.4 Mb/d, North Sea contributing with a drop of almost 3.3 Mb/d. The so called FSU grouping is expected not only to counter the natural decline of its existing fields but also to add a future 2.8 Mb/d over the next two decades. The developing countries will be as productive within the non-OPEC countries, also adding 2.8 Mb/d over the next twenty years. Thus, the non-OPEC countries will in total increase their output by 3.1 Mb/d by the year 2000. In fact what is expected to happen is that non-OPEC supplies will increase by 4.1 Mb/d between now and 2010, decreasing by 1.0 Mb/d over the 2010 -2020 period."

And, he concluded in this way:

" With such behavior of the world oil demand and non-OPEC production, the balance would need to be met by OPEC Member Countries. So OPEC would have to compensate for the natural decline of the present production and add over 20 Mb/d by the year 2020, that is an average of 1 million barrels per day per year."

Pierre Shammas, the President of APS Energy Group, however, put stress on the importance of the Middle East oil, " The Middle East is by far the biggest oil reservoir in the world and its importance to the global economy is growing further. This region's capacity to meet world oil demand will be crucial to the global economy for as long as energy remains the main engine for growth", he said.

He followed, then: "The Middle East today accounts for more than 65% of the world's proven oil reserves, compared to less than 56% at the beginning of the 1980s, and its reserves to production (R/P) ratio averages more than 87 years. The world's R/P ratio for oil has declined to about 40 years."

And, in the wake of his remarks, he forecast that:

"The importance of the Middle East will have grown considerably by 2005. It will account for 39% of the world's output capacities."

But Ali Akbar AleAgh introduced a new discussion, arguing about the disagreement between the petroleum experts and economist. According to him: "In fact, the question of reserves has been hotly debated over the recent years. There is much disagreement between the geologists and petroleum engineers on the one side and economists on the other. The first group take the view point that ultimate recoverable resources has a fixed physical basis and the role of technology is limited to the extent by which the resources can be depleted. The economists however look at the concept differently, allowing for technology not only improving recovery factors but also constantly redefining what may be economic, although there is not much difference between the two roles so considered for technology".

Nevertheless, he finally contended that: " No matter which type of reserve forecast is used, whether we use those by the Geologists or by the economists, whether we consider proven reserves or the remaining ultimately recoverable resources, there is an undisputed fact. OPEC Member Countries in general and the Middle Eastern ones in Particular will have an ever-increasing role in meeting the future demand for oil."

In this regard, Shammas pointed out the following remarks: " At any rate, Asian/Pacific demand for the Middle East oil and condensates will grow considerably in the years ahead. This will mean closer integration between the

privatization does not mean taking from the national oil company only to give to the national oil company pension fund

● Liberalized energy markets and capital markets

● Consolidation trends of international oil companies with merging

● The effective growth of international structures, such as WTO, OECD and EU

● Increased concern for stability in oil and energy market

● Intensified international competition

● The security of demand is as importance as security of supply

● The change of relationship between exporting countries and consumers and commencement of new era.

● Undoubtedly better environment, is one of the main demands of human beings in the globe.

● The trends of gas price changes is compatible and dependent to changes of oil price.

● The importance of OPEC decisions have been more clear and determinative on the world economic growth compared to past years."

Then he added: "Facing with continuous changeable environment and preservation of its principals and policies is a continuing challenge that Iran as a major producer with vast oil and gas reserves should consider it."

Ghadiri believed that " In order to answer to the questions, the challenges and other changeable environment, that facing NIOC and Iran, NIOC from her side, contributed to restructure her organization."

At last he concluded that: restructuring of NIOC pave the road for the development of our resources at a lower cost and reasonable rate of return.

Leading Technologies in oil industry

The first speaker of this session was **David I. McEvoy, Vice President of Exxon Business Development Department.**

He said, "Regarding siesmic surveys, he started his speech: "As an industry, a lot of time and money is spent in acquiring, processing, and interpreting seismic data, and we have come to depend on it greatly in most aspects of our business. Today, with advancements in acquisition and processing the industry has wavelet stability which provides improved data fidelity."

Then he explained the importance of seismic in Iran. He claimed: "A second component for success in Iran, is developing a quantitative understanding of the entire basin throughout its geologic history including source rock parameters, hydrocarbon type and yield, migration pathways, and real effectiveness, by what we refer to as a Hydrocarbon Systems Analysis. As recently as five to ten years ago, this analysis was qualitative, utilized topographic surveys, focused on single horizons, with hand-drawn 1-D maps as a product."

He finally concluded: "Tomorrow's integrative and interpretive technologies will provide unparalleled dimensional data sets, include routine virtual reality immersion techniques and utilize multi-sensors tools, such as audio and haptic technology. If these technologies are fully and correctly applied and data sets integrated, superior results will be readily achievable."

Rolf Odegard, Technology Director of Statoil, was the next speaker. First he gave a short history of Statoil Company. The, he discussed GTL. He said: "The interest in Gas-To-Liquids (GTL) processes as a way of utilising remote and associated natural gas is growing. This is due to a desire for alternatives to LNG for monetizing stranded gas and a need for environmentally acceptable solutions for large associated gas / oil reserves. A growing market for high quality, environmentally friendly transportation fuels makes GTL a sound way of exploiting natural gas, an abundant but under-utilized resource."

He continued "Synthesis gas production technology is the key area for further cost reductions in all GTL processes. For large scale GTL process schemes, the technology must be suitable for scale-up to sizes equivalent to 2-4 times the size of today's largest methanol plants and at the same time matching the requirements of the F-T synthesis."

Odegard, Then, dealt with economics of GTL. He said: "Successful economic implementation of Gas to Liquids technology is dependent on 4 important factors:

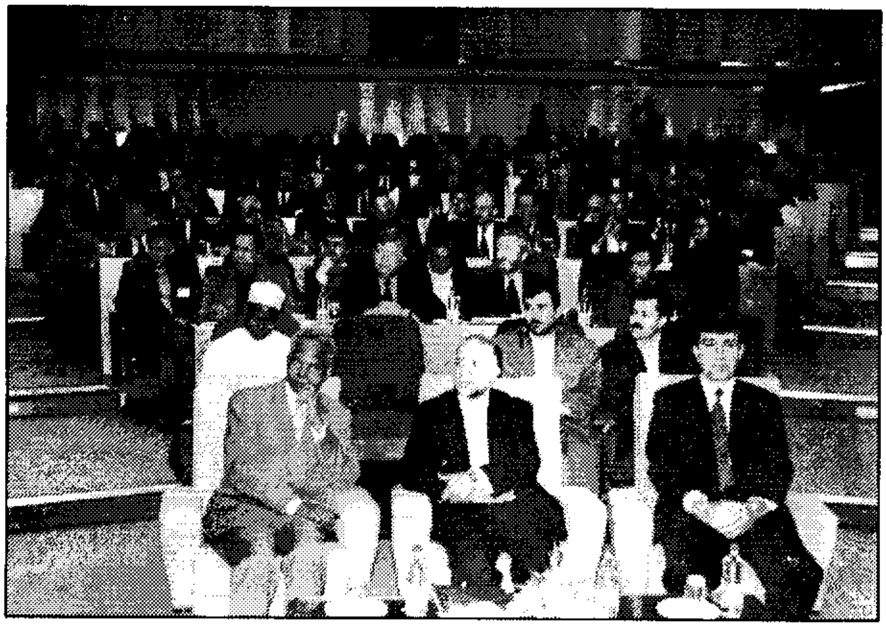
● The crude oil price

● The price of the natural gas feedstock

● The capital cost of the plant

● The local conditions"

And he continued: "It is evident that GTL is not of interest for conversion of gas in areas where gas is sold as energy to end users, e.g. in Central Europe or USA where natural gas prices are typically 2-3 $/MMBtu at an oil price of 15-20 $/bbl. The key to make GTL competitive is obviously the capital cost of the plant. If one assumes a long term oil price scenario between 15 and 20 $/bbl, the investment costs needs to be below 30000 $ per daily barrel capacity. Present Statoil cost estimates indicate that this is within reach.



noted that in all above, application of the latest technology is to play an essential role. Then, he added: "All above development projects will be carried out, or supervised, by the petroleum engineering and Development Company, PEDEC, which is another subsidiary of NIOC specifically formed to achieve the highest level of efficiency through a co-ordinate and united approach."

On the other hand, Rahmani believed that the success in development projects rests in hands of the U.S. companies, as he said, " Of course, today, two years later, the price picture has changed dramatically. Production has inched up to close to four million barrels per day. And the oil companies are signing up to invest- some of them anyway- with the rest trying to decide what they should- and are permitted to do -in Iran. The so-called ILSA sanctions in non-U.S. oil companies will expire next summer. U.S. restrictions on U.S. companies, subject to a different sanctions regime, may well be eased next year as well, enough at least to allow us, the U.S. companies, to begin serious, open discussions on specific opportunities within Iran. Of course, the outcome of the U.S. presidential elections will determine the speed at which U.S. companies will be allowed to begin actual work in this country. And as everyone here recognizes, Iran very much needs the U.S. oil companies- the engine of the world oil industry."

Such being the case, as he bears, they are buy back contracts to blame: " Iran's approach to the international oil industry has only limited success so far- and not just because of sanctions. Importantly, the buy back schemes currently prevalent here are not the risk-reward sharing formula of choice- either for Iran or for the oil companies."

As concluding remarks, speakers proposed some strategies as a remedy for the shortcomings and faults of Iran's oil industry, and supply. Mirmoezi concluded that: "All in all, the whole petroleum industry in Iran is determined to achieve the goals of the country. Thus in conclusion, it could be said that NIOC has both the required reserves and the necessary exploration and development plants to meet the challenge of the future and increase the Iranian production capacity most effectively. While we are proud of our own technical capacities and devoted manpower, we welcome ideas, suggestions and co-operation from all others."

Meanwhile, Rahmani, put forward some resolutions regarding the problems. He asserted that: "the buy back approach needs rethinking, retooling, even replacement. Witness the fact the Iran is substantially behind its own schedule for signing up companies for the dozens of projects on offer for the past several years. Iran needs to join the rest of the world and offer production-sharing contracts- at least for exploration. Perhaps even for some development and re-development projects as well. This country's requirements for outside capital, initially, are in the tens of billions of dollars, and eventually, much more. Only production sharing contracts will bring in enough top-tier companies with enough resources on a schedule to meet those needs in a timely and efficient manner.

And he followed: "But it is not only about money. The international oil companies should be left alone- as in the rest of the world- to do what they do best: apply their own management and technological skills to most effectively deploy what are, after all, their own capital resources."

Finally he put an end to his remarks by saying that:

"Reduce the size of the bureaucracy. Streamline procedures. Provide greater transparency in dealing with the international oil companies. Clarify the rules of the game and explain them clearly to outside investors. And privatize. But remember that privatization does not mean taking from the national oil company only to give to the national oil company pension fund".

But **Faramarz Ghadiri**, the other speaker, regarding the problems facing NIOC and confirming the other two speakers, suggested considering the recent changes and planning for fully utilization of these changes for development. " They are as follows:

the time has come for consuming country governments to cease using OPEC as a scapegoat

place in the implementation of national programs of Turkmenistan on taking out of power bearings to the international markets has cooperation with the Islamic Republic of Iran. Through the given gas line more than 5 bln.cm of gas is delivered to the customers of the Islamic Republic of Iran. In the nearest future the considerable magnification of gas deliveries on this export gas line is expected."

And, he concluded that: "It is necessary to mark operation of NIOC company in Turkmenistan. We should mark the gain of the given company in construction of an above named gas pipeline by an expansion on territory of Turkmenistan 135 Kms installation of a complex gas conditioning on the Kirpedje field, metric station in Chaloyuk. NIOC company also participates in reconstruction of Turkmenbashi refinery."

The last speaker in this session, **Dr Abdolrahim Gavahi, Secretary General of ECO**, began his discussion by elaborating on some ECO's goals. He said: "ECO is intensifying its endeavours to take advantage of new opportunities for increasing trade, investment and production. The regional approach to the development today is admitted as an important element of international development strategy, especially in the context of developing countries such as ECO Member States, with its impact on attracting investment and technology to develop energy and the mineral resources while preserving environment."

He added: "Four ECO member countries are Caspian Sea littoral states with significant energy resources which except one are landlocked. Their markets are individually too small to be attractive to the investors, their infrastructure and legal systems end at national borders, and the average per-capita income remains below the minimum acceptable figures. Therefore, there is no sector more attractive on the ECO region's prospects for developing its intergovernmental cooperation than the energy sector."

Finally, he concluded his discussion with the following statements: "I emphasize again that in this richly endowed region, our organization has to play a pivotal role to promote economic cooperation between our countries and provide a framework for development of an infrastructural network for the ECO Member States and Caspian Sea Littoral countries in particular to the rest of the world through roads, pipelines, maritime and air links of the Eco founding member countries."

Oil supply and policies

This session was convened on the first day of the conference. Four speakers commented on oil supply issues focusing on the Persian Gulf states and Iran's unique role in meeting the global demand for energy. At first, **Mehdi Mirmoezi, Deputy Minister of Petroleum for Exploration and Production of I.R. Iran**, attracted the audience's attention towards the forecast by OPEC's World Energy Model. Then he added: "We are going to meet the expectations through a number of actions; exploring for new fields, development of existing fields and extensive EOR operations in many fields including some of Iran's giant older fields. In all these activities we will utilized the most up to date technologies using all domestic resources and whatever foreign expertise and services necessary to achieve the highest level of efficiency possible."

However, the other speaker, **Bijan Mossavar-Rahmani, Chairman of Mondoil Corp.** having given some historical background on Iran's oil industry and its development through 20 years of revolution, presented quite contradictory view: " Notwithstanding some recent pickup and some impressive successes, Iran has had no real exploration activity in some 30 years, and its production technology, for the most part, is just as old. In the upstream or exploration and production arena, 30 years represents many, many generations of technological change. And again, Iran has had only limited access even to the technology of those prior 25 years, much less to the most recent advances".

Nevertheless, both speakers agreed that such conditions are due in large measure to such factors " as the 8 year imposed war, embargoes and very negative propaganda. But according to Rahmani: " Iran's prominence within OPEC and, importantly, in Persian Gulf oil, dropped sharply after the 1979 revolution, triggered by several developments. Needless to say, the upheavals in the wake of the revolution-dismissal of experienced Iranian managers, lack of financial and technical resources, the forced departure of the international oil companies, cancellation of secondary recovery projects and new exploration activities and the war with Iraq -all contributed to a steady decline in production capacity, eventually to about one-half of the previous levels."

In his speech, Mirmoizi then dealt with elaborating some achievements in E&P Area, specifying the projects either completed or in progress, and contended that: " It should be also

Ministerial Session

The 5th annual international conference was commenced with the ministerial opening session, in which, **H.E. Bijan Zangeneh, the Minister of Petroleum of Iran** gave his opening statements focusing on Iran's plans and policies within the framework of the general trends of global and OPEC energy supply and demand. He said: "Based on forecasts made for the global energy mix to the year 2020, the total share of oil and gas in the global energy consumption mix will not change dramatically. Oil's share, however, will witness a 2-3 percent fall, which will be taken up by gas. Current trends indicate that OPEC will be able to meet 50-55% of this additional demand which would be equal to 60 MBD of oil for all its members. Based on Iran's current share of about 15% of OPEC total, we should nearly double our production capacity in the period under discussion." Then, he tried to explain Iran's achievements in this regard. He expressed: "For the purpose we have enhanced exploration operations, and in the past 3 years have had more than 26 billion barrels of crude oil and about 850 billion cubic meters (BCM) of natural gas added to the nations reserves. Azadegan field is the biggest oil field discovered in the past 35 years. Tabnak gas field is the biggest ever sweet gas field discovered in the history of Iran.

Then he added: "Iran has been trying to export gas to the neighbouring countries via pipelines. For the purpose of exporting gas to the Far East, GTL and LNG have been chosen as the means. This enjoys the basic priority of the energy policy of Iran."

As his concluding remarks, he announced: "I would like to reiterate that the sooner the Caspian Sea legal regime is discussed, resolved and agreed upon, the better the littoral states' interests will be served. An integral view of energy issues in the region can pave the path for a better and rapid development of the area."

The second speaker in the ministerial opening session, then **secretary general of OPEC, Dr. Rilwanu Lukman**, gave his lecture on OPEC's current and future role in meeting the world's energy demand. He contended: "OPEC Member Countries lost around US $50-US $60 billion in oil revenues and had to make drastic cuts in their spending programmes. Meanwhile, a wave of merger, acquisitions and drastic cost, cutting measures swept through the international oil companies, which were also forced to drastically cut their investment programmes in order to adapt to what, at the time, was thought to be a permanent new reality. We are already seeing the effects of these cuts in the seeming inability of non-OPEC countries to react to the current strong price levels by increasing exploration and production activity."

He continued: "OPEC acknowledges that the governments of the consuming countries have every right to tax oil products if they want to, but the time has come for consuming country governments to cease using OPEC as a scapegoat. Cited again and again as the sole cause of the high gasoline and fuel prices paid by consumers."

Then he expressed his worry about the probable results of negotiations on climate change: "The measures proposed to curtail greenhouse gas emissions represent a very real and dangerous threat to the economic health of nations that are heavily reliant on oil exports. The fact that many of our Member Countries earn more than 90 per cent of their foreign exchange from hydrocarbon sales makes them, thus, highly vulnerable."

He added: "Studies prepared by our Organization show that OPEC Member Countries could stand to lose annual oil export revenues of between US $23 billion and US $63 billion, depending on the scenario, if industrialized countries imposed carbon taxes at sufficient levels to achieve emission reduction targets by 2010, as set out by the Kyoto Protocal of December 1997. This equates to a fall in world oil demand of between 7.6 million and 10.1 million barrels a day by 2010. Additionally, OPEC welfare losses as a percentage of GDP would be in the range of -1.7 to -3.5 percent. Nonetheless, several ideas have been proposed to minimise the direct effects of mitigation measures on oil exporters. One suggestion is that energy taxes could be restructured according to carbon content. OPEC's losses would also be around US $4 billion less than in the simple taxation scenarios."

He put an end to his speech by giving the following remarks: "OPEC remains as committed as ever to a stable oil Market and we stand ready to work together with all the players in the global energy industry to ensure that we can meet the demands of the new millennium. We have successfully met the numerous challenges we have had to face during our forty years history. We are continuing to act responsibly in our current efforts to stabilize the oil market in co-operation with our non-OPEC partners."

Kh. Babayev, Deputy Minister of Oil and Gas Industry & Mineral resources of Turkmenistan, started his speech, giving some details on Turkmen oil and gas reserves. He said: "The huge potential reserves of power resources, proved by certification of the independent international companies, political stability within the state as well as the effective legal base construct an attractive ground for the foreign partners.

Then, he followed: "The relevant

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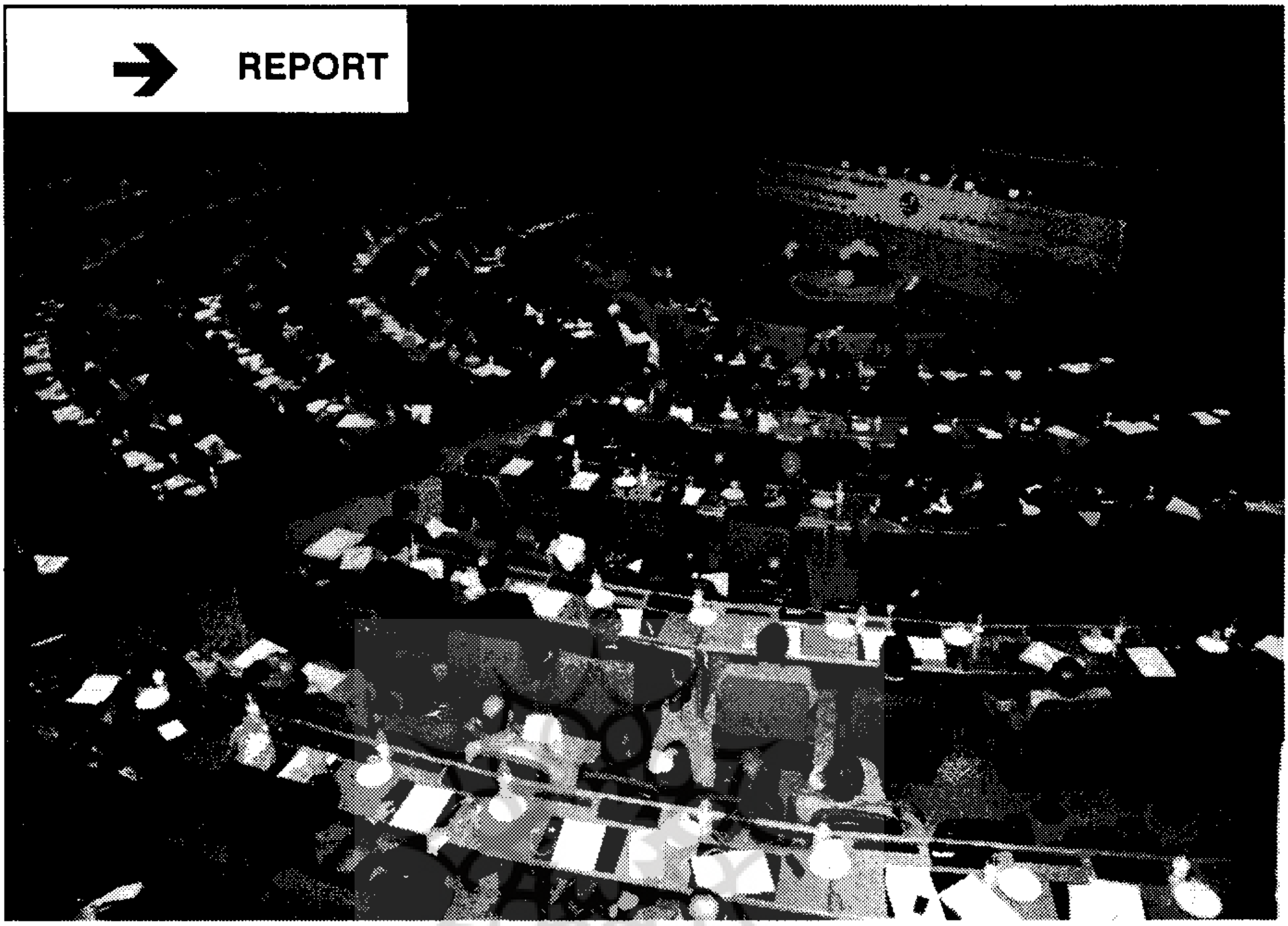

International Conference, "The Impact of The Middle East/Caspian Oil on The Global Energy Markets"

Farhad Mohammadi[1] & Homayoun Nassimi[2]

"The Impact of the Middle East/Caspian oil on Global Energy Markets" was the title of the fifth annual conference convened by Institute for International Energy Studies (IIES). This conference was held on November, 4 and 5, 2000 and attended by local and foreign experts.

The organizer, considering the developments of global oil markets and the relevant aftermaths observable in upstream and downstream, focused on such subjects as the Middle East and the Caspian oil resources, agreements, oil prices, advanced technologies, energy supply, oil producers and consumer's cooperation, crude oil supply and applicable policies, new investments and finance.

It is worth mentioning that out of some 110 papers submitted to the conference secretariat, 45 ones were selected and presented through 9 sessions in 2 days, including the ministerial and executive sessions.

This report is intended to highlight viewpoints of the speakers in those sessions.

1,2- Institute for International Energy Studies