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REPORT: VISIT TO DEVELOPING COUNTRIES, UNIDO/NORWAY MEETING

1. REASON FOR VISIT

The reason for this visit was to prepare and inform the developing countries mentioned below, about a joint Norway UNIDO meeting on offshore drilling support industries.

2. TIME AND PLACE OF THE MEETING

The meeting is suggested to be arranged at Sanderstølen Hotel, approximately 200 km from Oslo. From 21 to [illegible] August 198[illegible].

From Sanderstølen, the group will to be taken to the [illegible] Conference and Exhibition, Offshore Northern Seas [illegible], from [illegible] to 29 August 1986.

3. SUGGESTED TOPICS FOR THE UNIDO MEETING

The organizing committee has suggested the following topics:

- Legislation - [illegible] - The rewritten Norwegian model.
    - Maintenance
    - Quality Control
    - Safety
- Contracts/Subcontracts, Standards
- Norwegian experience, engineering and products used.
- Infra-structural developments.

6. PERSONS MET IN THE DIFFERENT COUNTRIES:

6.1 China

Name	Title	Company
Mr Zhao Weichen	Vice Minister	State Economic Commission.
Mr Xu Ji	Director	Bureau of Foreign Affairs, State Economic Commission.
Mr Zhao Junjie	Senior Economy Architect	Office of Offshore Oil Equipment.
		State Economic Commission.
Mr Li Huan	Deputy Director	Bejing Jeep Corporation.
Mr Zhao Wei Yin	Vice Director	Plant Engineering Office Bejing Economic Committee.
Mr Liu Yanyong	Vice President	Northwestern Polytechnical University.
Mr Yang Feng	Vice Director of	Shaanxi Province, Economic Committee.
Mr Li Shumin	Associate Professor	Northwestern Polytechnical University.
Mr Xu Mingki	Deputy Chief	Bejing Organic Chemical Plant.
Mr Yang Ziping	Section Chief	Bejing Organic Chemical Plant.
Mr Lin Xian Wen	Economist	Bejing Economic Commission
Mr Gao Zongwei	Manager	Bejing Chemical Corporation
Mr Tang Quanlin	Deputy Secretary General	China Association of Plant Engineering.
Mr Hua Shiwei	Deputy Secretary General	China Association of Plant Engineering.
Mr Lan Weijin	Deputy Secretary General	China Association of Plant Engineering.
Mr Albertus W Sissingh	S.I.I.P.A.	U.N.I.P.
Mr Gunnar Asphaug	Representative in China	Statoil.

6.2 Philippines

Mr Gary Makasia	Chief Planning Services	Ministry of Energy

Mr Apollo F Madrid	Chief Oil and Gas Division	Bureau of Energy Dvlpt Ministry of Energy.
Mr Raymundo A Reyes	Senior Geologist	Bureau of Energy Dvlpt.
Mr Rafael M Rosel	Geologist	Oil and Gas Division Ministry of Energy.
Mr Ruben M Gan	Geologist	Oil and Gas Division Ministry of Energy.
Ms Fe Tupas	Senior Program Officer	U.N.D.P.

6.3 <u>South Korea</u>

Mr Kae Chung Mu	General Manager	Exploration and Production Department. Korea Petroleum Developmt Corporation.
Mr Ho-Chul Kim		Resource Bureau Division. Ministry of Energy and Resources.
Mr CHO, Ki Bong	Director	Petroleum Developmt [illegible]. Ministry of Energy and Resources.

6.4 <u>India</u>

Dr M Kamal Hussein	S.I.D.F.A.	U.N.D.P.
Mr W I Ko		HYUNDAI.
Mr Y S Yeon		DAEWOO Shipbuilding and Heavy Machinery Ltd.

6.5 <u>Pakistan</u>

Mr S Zahid Hasan	Director Finance	Oil and Gas Dvlpt Corp.
Mr Sabir Ahmed	Principal Project Officer	Offshore Dep. Oil and Gas Devlopmt Corp.
Mr Mohiuddin Siddiqui	Senior Project Officer	Offshore Dep. Oil and Gas Devlopmt Corp.
Mr T N Mirza	Geophysicist	Offshore Dep. Oil and Gas Devlopmt Corp.
Mr Abdul Aleem	Deputy Chief Engineer	Oil and Gas Developmt Corp.
Mr F A Rao	Manager Drilling Int.	PETRO - CANADA

Mr Mark A Topolnyski	Project Administrator	PETRO - CANADA
Mr Peter Smith	Area Manager	PETRO - CANADA

6.6 Egypt

Mr Mohammed Hafez	Project Manager	Enppi
Mr Ahmed A Ammar	General Manager	Egyptian General Petroleum Corporation.
Mr Mouhammed Meebed	Deputy Chairman	E.G.P.C.

6.7 Algeria

Mr M Bensmina	Director	Ministry of Energy.
Mr M Boumaza	Director Exploitation	SONATRAC
Mr Salaheid		U.N.D.P.
Mr Abdallah Hebbadj	Program Officer	U.N.I.P.

7. RESULTS FROM THE DIFFERENT MEETINGS

During the meetings, three subjects were supposed to be discussed:

- Presentation of the Norway/UNIDO meeting
- What is going on within the Offshore Industry
- Future trends

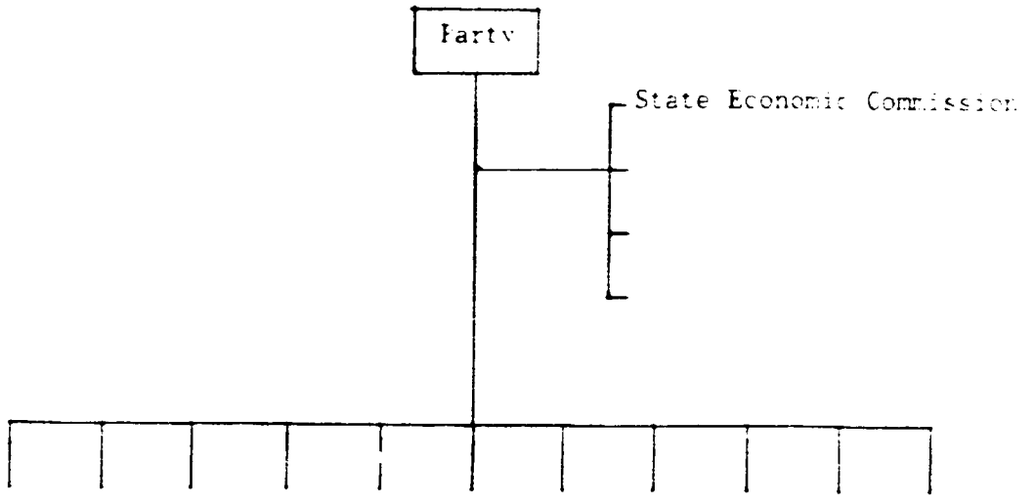
The meetings usually started by giving information about the background of my mission; the suggested time schedule for the meeting, the main topics suggested, and our suggestions for the arrangements of the meeting, i.e. hotel, dates, transport, and so on.
For the meetings, I had prepared printed information about the Norwegian UNIDO meeting, together with the preliminary programme for Offshore Northern Seas 86.

Many of the countries visited, - Philippines
- Egypt
- Algeria
- Pakistan, didn't know anything at all about UNIDO as an organization and what kind of help the organization is supposed to give to developing countries. I gave them as good information as I could, but it would have been a great deal of help, if I had brought with me written information about UNIDO, that I could leave behind.

7.1 China

7.1.1 UNIDO/Norway meeting

In China I had meetings with four different groups. Two of them were led by Mr Zhao Weichen, Vice Minister of the State Economic Commission.



It is organized together with three other commissions. The State Economic Commission is divided into the following groups:

- Industry
- Energy, Offshore - Onshore
- Feeding
- Maintenance
- Quality Control
- Packing
- Transportation

The State Economic Commission guides the ministries and prepares e.g. their budgets.

All the people met were very much in favour of the UNIDO/Norway meeting.

- Dates: They didn't have any comments, but thought that we maybe should use one more day.

- Topics: To China topic no. 5. Training of personnel was the most interesting. Then no. 3, 4, 2 and 1.

- Program: China was very much in favour of dividing the days into two sessions: 0800 to 1230. Papers presented by Norwegian experts within the different topics. 1300 to 1830 workshops.

The invitation to the meeting should be sent to Mr Zhai. Then the State Economic Commission is going to discuss which experts from:

- Platform Building
- Construction
- Operation
- Process
- Maintenance

that are going to visit the UNIDO/Norway meeting and ONS 81.

Mr Zhao would like to act as a leader for the Chinese delegation himself. He suggested that the group should consist of about 10 persons. The technical experts should join the UNIDO/Norway meeting, and he himself would like to attend the last day of this meeting and the whole ONS 86 together with the delegation. During his stay, Mr Zhao would like to meet the following Norwegian ministers for:

- Transportation
- Energy
- Industry
- Foreign affairs

The reason for the meetings should be to discuss a framework agreement of cooperation between the two countries.
At ONS 86, Mr Zhao would like to present a paper about the open door policy of China.
For the UNIDO/Norway meeting China suggested as follows:

- The different countries should prepare themselves for joining the workshops.

- They should bring with them different projects that could be discussed within the workshops.

- Each of the countries should prepare a paper telling others about the status of each topic within the country. A summary of the paper should be given at the start of each workshop.

- After the conference, Norwegian Industry and UNIDO should meet and discuss the different suggestions, solutions and ways to handle the different projects.

China would like to strengthen their contacts with UNIDO and during my visit I received a formal invitation for Mr Milan Delos and myself to visit China in 1986.

China is coming to the EFNMS conference, Maintenance 86, in May in Barcelona, with a group of 5 persons. They are also interested in visiting UNIDO, Vienna, in West Germany and Norway.

During my stay, I also made a visit to Northwestern Polytechnical University in Xian. It was a very interesting visit, and I was asked to try to discuss a project with UNIDO, within the following:

- Development of EDP-based operation and maintenance systems.
- Training of personnel within the use of EDP equipment.

During my visit in Beijing I also made contact with Mr Sissingh, SIPA, and informed him about my mission, about which people I had met and future plans. Mr Sissingh was very helpful to me: he sent a telex to the other countries telling them about my arrival and which hotel I should stay at.

Mr Sissingh was promised to be kept informed about the program of the conference as soon as it was finished.

7.1.2 Present situation

Since Liberation, the petroleum industry has been China's fastest-growing industrial sector, currently including some 360 enterprises. Up to the 1950s, China's oil resources lay virtually untapped, with only 3 oilfields at Laozunmiao in Gansu, Dashanji in Xinjiang, and Yenchang in Shaanxi; 2 natural gas fields in Shengdengshan and Shiyougou in Sichuan; and 2 oil shale refineries in Fushun, Liaoning. On this weak foundation, pre-Liberation production reached a 1943 maximum of only 320,000 tons of crude oil.

In 1958, intensive prospecting began in east China, an area dismissed as "oilless" by foreign experts, and in a number of bases in northeast and north China. The following year oil was struck in the continental sedimentary rocks in the Songliao Basin in the northeast. A large contingent of oil experts, technicians, and workers converged on the base at Daqing. Over the next two or three years, under extremely difficult conditions, the group succeeded in obtaining a clear picture of the total reserve in the area and started opening up the oil field. By 1963, the national crude oil output had reached 6,480,000 tons, ending China's dependence on oil importation.

From 196- on, oil exploration shifted to the basin along the Bohai Gulf, leading to the discovery and construction of the Shengli Oilfield in Shandong, the Dagang Oilfield in Tianjin, the Liaohe Oilfield in Liaoning and the Qizhong Oilfield in Hebei. At the same time, natural gas prospecting and exploitation were under way in Sichuan and other areas.

Geophysical exploration and drilling along the continental shelf began in 1966. Some of the test wells on the Bohai Sea, the Beibu Gulf in the South China Sea, the Yingge Sea, and outside the Zhujiang River estuary are now gushing oil. Wells drilled on the East China sea have also yielded crude oil. In the last three years, China has developed links with more than 40 foreign companies for joint prospecting and exploration of major offshore oilfields. Several of these are expected to go into production in the late 1980's.

By 1979, 19 provinces, cities, and autonomous regions had reported reserves of oil and natural gas. Fifteen new bases had already gone into production, and 122 more were in various stages of planning and construction.

Through 30 years of steady development, China's exploration and extraction technology has seen tremendous improvement. Nor has her refining industry been neglected. A total of 9,746 km of pipeline has been laid to deliver crude oil from major oilfields to ports and refineries, and the oil, chemical engineering and chemical fiber industries have organized a number of integrated petro-chemical enterprises for more efficient processing.

7.1.3. Future Trends

The chinese were very careful about this information, but they promised to bring it with them to Norway, together with possible projects.

7.2 Philippines

In the Philippines I had three meetings with different people from the Ministry of Energy and one meeting at the U.N.D.P. office.

7.2.1. UNIDO/Norway meeting

The general opinion was that there had been too little opportunity between developing countries to discuss the development of oil and gas production. Therefore, they welcomed highly the initiative taken by UNIDO to bring these countries together and especially to bring them together in Norway. This country is today a Hi-Tech Country within the Offshore Industry. But 15 years ago, Norway was also a developing country within this field. The Philippines are, therefore very much in favour of coming to Norway to share our experiences.

Date: Nobody had any comments about the time and place for the conference.

Topics: The topics suggested were very good. In the Philippines, Marine Environment is of great interest, and was suggested to be laid down as a topic.

- Management
- Operation
- Maintenance

are of great interest. The development of database for:

- Geology
- Safety
- Management
- Operation
- Maintenance

should also be discussed.

Program: It was suggested that the meetings start in plenum, presenting Norwegian papers within each topic. Then the participants should be divided into two groups - Engineers and Economists discussing 1, 2, 5 and 3, 4.
It was also suggested that the program cover four days.

The invitation to the meeting should be sent to Mr Gary Makasiar, Chief of Planning Services for the Ministry of Energy.

It was suggested that the group should consist of 3 - 5 people divided into:

2 persons from the ministry +
- 1 technical expert
- 1 economist
- 1 lawyer

7.2.2 What is going on within the offshore industry.

The Philippines are soon going to face deep-water technology problems at 1000 feet. Due to this, they have postponed the exploration, drilling and production. They are very interested in a discussion with Norwegian authorities concerning a Joint-Venture Norway - Philippines.

Because of the political situation, the Philippines at this stage, could not give me any more information neither on what was going on, nor on future trends. However, they promised to bring with them information and suggestions about future projects to Norway.

7.3. South Korea

7.3.1 U.N.D.P.

Arriving in Seoul, I made contact with the U.N.D.P. office to get information about the offices and persons to meet. No arrangements had been made and Mr Jaques Van Engel told me that they were not aware of the telex sent by UNIDO on 30 August, asking the different U.N.D.P. offices to prepare my meetings. After having got the necessary information about my mission, Mr Van Engel did a very good job and succeeded in arranging meetings with:

- PEDCO, Korea Petroleum Development Corporation
- MOER, Ministry of Energy and Resource.
  We also tried to make arrangements with two other companies: HYUNDAI and DAEWOO, Shipbuilding and Heavy Machinery Ltd, respectively. Unfortunately, the people I would like to have spoken with, were on a visit to USA.

Mr Van Engel was promised, after having been informed about the next steps to be taken, to arrange the meeting in Norway.

7.3.2 UNIDO/Norway meeting

Mr CHO Ki Bong, Director of the Petroleum Division within the Ministry of Energy and Resources, expressed Korea's great interest in joining both the UNIDO meeting and ONS 86.

Dates: The persons met didn't have any comments on the suggested dates, but they thought the conference was of very great interest that we should add one more day.

Topics: For Korea, the topic of Legislation is of great interest. I was asked about the possibility of making a UNIDO/Offshore Legislation project.
Korea are preparing their Legislation now and are highly interested in input to this work.
A great interest for the Technology developed for the North Sea was also expressed.

Program: Korea was very much in favour of dividing the conference into two sessions.
In the morning session, Norwegian experts should present their papers within the different topics, and in the afternoon, representatives from the different countries taking part in the meeting should give a summary of what is going on within their country, and workshops should be arranged, discussing the problems and possible projects. The last day a plenary session should be made where the results of the different workshops should be presented.

Mr Cho would like to participate himself, together with an expert group and he would like to visit both meetings; that of UNIDO and ONS 86.

Korea was interested in a Joint Venture with Statoil as the operator in Block VI-I, in the yellow Sea, and I received the necessary papers in which to inform Statoil.

7.3.3 Present Status and Future Plans

7.3.3.1 Exploration Activities

- 1966: ECAFE confired the presence of Tertiary Rocks Offshore Pohang and along theeast coast.

- 1969: CCOP conducted a marine sparker survey of the continental shelf.

- 1970: Korea promulgated the Submarine Mineral Resources Development Law and divided the continental shelf into 7 Blocks.

- 1970: Three concession holders commenced marine geophysical surveys for petroleum prospects; later, other companies started surveys.

7.3.3.2 Results

- The original participating companies were GULF, SHELL, TEXACO/ CHEVRON and the Korean-American Oil Company (KOAM). Later, certain other partners participated with KOAM in the Joint Development Zone.

- A total of over 47,000 line kilometers of seismic profiles have been surveyed.

- Eleven exploratory wells have been drilled with some of them yielding oil and gas indications.

- After the drilling of six exploratory wells GULF, SHELL and TEXACO relinquished their blocks.

- KOAM, TEXACO and other companies maintain an interest in certain subzones of the Korea-Japan Joint Development Zone.

7.3.3.3 Status of Active Offshore Blocks

- The Korea-Japan Joint Development Zone is divided into 9 subzones and is being developed by an agreement between both countries. Plans are to drill more wells in 1984 and in the ensuing years.

- PEDCO/ZAPEX Block (Southern portion of Block IV)
  * For this Block PEDCO secured, in June 1980, a joint exploration license with ZAPEX, and in August 1981 signed a joint development contract.
  * ZAPEX drilled one dry exploratory well in themiddle of 1983, then in 1984, with the condition of future participations, ZAPEX officially relinquished their interest in this Block.

7.3.3.4 Prospective Areas in the Offshore Blocks (See Fig. 1)

- Northwestern part of Block II

- South and Southwestern part of Block IV

- Southern portion of Block V

- Southwestern portion of Block VI-2

- Central portion of Block VI-2

7.3.3.5 Exploration Planning by the Korean Government

- According to the Government's long term plan for offshore exploration, PEDCO will run a detailed seismic survey of about 3,000 line kilometers over Block V during 1984 for the purpose of determining future drilling sites. Subsequent exploration work will be followed in the ensuing years.

7.3.3.6 Exploration of Block VI-1

- Exploration History

  * Size: VI-1 is app. 12,920 Sq. kms and
    VI-2 is app. 11,670 Sq. kms.
  * In 1968, under the financial support by the UN-ECAFE the Huntec Geophysical Company carried out a seismic survey in an offshore area near thenorthern part of Block VI-1.
  * The Royal Dutch/Shell Group of Companies obtained a lease on Block VI (now split into Block VI-1 and Block VI-2) from the Korean Government in 1969 and conducted more than 10,500 line kilometers of seismic surveys from 1970 to 1975. Three exploratory wells, Dolgorae-1, Domi-1 and Sora-1 were drilled as a result of this survey.
  * Later, in 1975, KIER (the Korea Institute of Energy and Resources) made a reinterpretation of the seismic information in Block VI-1 and VI-2.
  * By agreement with PEDCO, a further research project about the petroleum potential of Block VI was conducted by KIER in 1982. On the basis of this work, KIER recommended that PEDCO carry out an additional seismic survey.
  * During the fall of 1983, PEDCO contracted for a detailed geophysical exploration program on Block VI-1. This survey consisted of approximately 2,900 line kilometers of seismic profiles along with gravity and magnetic data. The survey grid is deemed to be adequate to evaluate the whole area for its exploration potential. A summary of the results from the interpretation work is presented in the following section.

- Data Available on Block VI-1

  * <u>SHELL's earlier work</u>:
    Approximately 700 line kilometers of seismic profiles reprocessed by GSI in 1982 as a research project.

  * <u>PEDCO's 1983 survey</u>:
    Seismic data including the gravity and magnetic surveys were collected by GSI, then processed by GSI and GeoQuest.

7.4. India

7.4.1. U.N.D.P.

In Delhi I was met at the Airport by a staff member from U.N.D.P. He had brought with him a copy of the telex sent from Mr Sissingh, Bejing. In the morning I telephoned the Embassies of Kuwait and Saudi Arabia to ask if arrangements had been made concerning my visas. Nothing had been done, and they advised me to make the necessary arrangements in Karachi. At 0900, I contacted the U.N.D.P. office and that they should contact Mr Kamal Hussein. At 1000 I got a telephone call from him and we decided to meet at 1600. Mr Hussein was not informed about my mission to India. He was in Vienna when the telex was sent from UNIDO. He had only seen the telex from Mr Sissingh. As this telex didn't tell anything about my mission apart from that I was coming, at which hotel I was going to stay at and a question if the necessary arrangements were made with the ministries, Mr Hussein, in his opinion, did not have enough information to contact the ministry.

To help solve the problem, I gave Mr Hussein written information about my mission, the suggested program for the UNIDO meeting and the written program for ONS 86. Mr Hussein would then make contact with the ministries and inform them about it. I also promised to send him more information as soon as the final arrangments were made.

In the afternoon, I was invited by Mr Hussein and his wife to join a very interesting U.N. 40 years anniversary meeting discussing the activities of the U.N. in India.

7.4.2. Present Status and Future Plans within the Indian Offshore Industry.

As it wasn't possible to arrange any meetings with the Indian Ministries, I have used other sources to gather some information about the Bombay High and Satellite Fields.

7.4.2.1 Location: About 240 km (149 miles) off the west coast of India, on the continental shelf in the Bombay Offshore Basin. The Bombay Offshore Basin is the southern extension of Cambay Basin and encompasses the Gulf of Cambay plus the adjoining shelf part of the Arabiar Sea and occupies an area of 1,200,00 sq. km.

7.4.2.2. Year of Discovery: 1974

7.4.2.3. Area: Several oil and gas fields have been discovered in the region of which Bombay High and Bassein are giant fields. Bombay High is the largest oilfield in India stretching over 2000 sq. km. (722 sq. miles, 494,10 3 acres).

7.4.2.4. Tectonic Setting: The Bombay Offshore Basin, is an intracratonic basin on the continental shelf of western India.

Formation of the Bombay basin must have started during the breakup Gondwanaland in the Late Cretaceous. Tectonically the basin can be divided into four large units:

- The Cambay Gulf Shelf
- Teh Dahanu depression
- The Bombay-Ratnagiri Shelf
- The western clastic basin fringing the Bombay-Ratnagiri Shelf.

5. Stratigraphy: Generalized stratigraphic sequence of Bombay Offshore Basin.

7.4.2.6. Source rocks: Bombay Offshore oils are the product mainly of terrestial organic matter of Paleogene and Miocene Prodelta muds, and lower Miocene and Paleogene shales.

7.4.2.7. Reservoir rocks: Three main reservoir facies include middle Eocene pelletoidal rocks of the Bassein area, bioclastic mudstone and wackestone of early Miocene age and biomicrite Limestone of middle Miocene age in the Bombay High area, and bioclastic grainstone facies of the shelf margin area.

7.4.2.8. Properties of crude oil:

FIELD	LITH	AGE	DEPTH(m)	APIoGravity	WAX%	POURPOINT(o)
BOMBAY	Ls	Mid Miocene	935	42.12	10.1	30
HIGH	Ls	Early Miocene	10260	38.37	10.8	30

7.4.2.9. Drilling conditions: Drilling conditions at Bombay High are comparatively far easier due to the shallow depth of the wells ranging from 130-1412 metres, in relatively shallow water depth of 60 metres. The sea floor consists of a slushy, loosely packed sediments which is far too unstable to support the legs of a platform, and it is necessary to drive the legs more than 30 m into the sea floor with a pile driver to keep the platform stable. Four well platforms have become the norm.

7.4.2.10. High formation pressures: In the Bombay Offshore Basin, overpressures have been encountered at the edge of the shelf margin and towards west in those structures which mostly trend east west. Drilling activities in these areas successfully apply modern pressure indicators to detect, evaluate, and control abnormally high formation pressures, which range up to twice that of hydrostatic. Depending on the well location, overpressures have been penetrated at various depths. One of the shallowest high pressure sections was encountered northeast of Bombay High in a well of 200 m drilled on the North Tapti structure. In other well again northeast of Bombay High, mud weight of 2 specific gravity was required to drill section 2760-3144 m.

7.4.2.11. Production: Commercial production began within two years of discovery. This is close to a world record. Bombay High oilfields registered a record production of 364,000 b/d in 1982. During 1983-84, oil production has been 17.4 million tons per year (348,000 barrels per day, using India's conversion factor 1 ton = 7.3 barrels), 67 percent of total Indian oil production and associated gas production 8-9 million cu.metres per day.
(282.5 - 317.8 MMCF per day).

7.4.2.12. Pipelines: Work on pipeline to feed refineries at Bombay began in 1976 and was finished in less than a year. The annual capacity of the crude oil (30 inch) and natural gas (28 inch) pipelines have been set at respectively 25 million tons per year (500,000 barrels per day) and 18 million cu.metres per day (653.67 MMCF per day). Currently the country plans to construct a 1000 mile gas pipeline to transport gas to six fertilizer plants in Rajasthan, Uttar Pardesh and Madhra.

7.4.2.13. Refineries: Refining capacity is being increased by 240,000 db/d via expansion of existing refineries. The program is to be completed by 1985.

Newest among the projects is 120,000 b/d Mathura refinery to process about 60,000 b/d of Bombay High Crude and a like volume of imported crude during 1983-84. The Soviet Union helped design, construct and comission the refinery at a cost of $310 million. India's twelve refineries have produced 16.9 mt of products in the first half of 1984-85. Much of the Bombay High production is exported. This crude is more suited to refineries with good secondary facilities whereas India's own refineries are better at handling Arab Gulf crudes.

7.4.2.14. ONGC's drilling program: A total of 163 wells-91 onshore, and 72 offshore - have been drilled in India during April 1983 - March 1984, an increase of 15 percent from previous corresponding period. Footage also was up 15 percent. ONGC proposes to drill 264 well during 1984-85.

7.4.2.15. ONGC'S fleet og rigs: 57 Rigs - 40 land and 17 offshore, were active during October 1984.

7.5. Pakistan

7.5.1. Oil and Gas Development Corporation.

In Karachi my meetings were very well organized by the U.N.D.P. office in Islamabad, and their liaison officer in Karachi.
When I came to the Oil and Gas Development Corp. OGDC, they had arranged a visit to the first offshore drilling well in Pakistan. The drilling started at the beginning of September and now they had reached a depth of 1703 meters. They are going to drill about 3500 m. The drilling was made by a Danish Drill Ship. Danwood Ice. We were transported by helicopter to the Drillship where we had some very interesting hours. We met with Pakistan experts that were trained by the crew on the ship. Coming back from the Drill Ship, we started the discussions about the possible UNIDO meeting/ONS 86 and the UNIDO projects.

The Oil and Gas Development Corporation need help for the training of operation and maintenance personnel. There is also a lack of experience concerning the Management of Offshore Projects.

I was asked about the possibility of taking offshore management and operating personnel to Norway to train them, and then come down to Pakistan to finish the training with on-the-job training. The possibilities of making such a project shoud be very good.
Pakistan has a lot of Offshore Projects where they need help, and I advised them to make contact with UNIDO, Vienna.

7.5.2. UNIDO meeting

- Dates: The people met didn't have any comments about the dates suggested.
- Topics: They were also very much in favour of the topics suggested, but they would like to add the following topics:
  - Management of Offshore Projects
  - Logistics
  - Foreign and On-the-Job training.

- Program: Pakistan agrees in the suggested program and they stressed the importance of every country preparing themselves, and bringing with them possible projects to discuss.

The invitations should be sent to Pakistan late April to make it possible to decide which people that should be sent.

7.5.3. Present Status and Future Plans.

OIL & GAS DEVELOPMENT CORPORATION (OFFSHORE DEPARTMENT)

OGDC, with the help of Petro-Canada International Assistance Corporation (PCIAC), started drilling their first offshore well end September/early October. It is the first venture of its kind being undertaken by OGDC under a loan of C$30 million being provided by CIDA to Government of Pakistan. Petro-Canada International Assistance Corporation (PCIAC) shall provide all the technical supervisory services. The loan negotiations which started in March 1984 were completed in March 1985.

The Offshore Hydrocarbon Project includes:

a) offshore drilling of one well utilizing Canadian contracted drilling equipment;
b) training of the Pakistani experts on the offshore exploration;
c) review of upto 8,750 km of existing maring seismic data.

The drilling equipment and material on M.V. Multan of PNSC is already on the high seas and two supply vessels for the supply of drilling material to the drillship are also being provided by the PNSC. The space for the bulk plant and the storage area has been provided by the KPT at the port of Karachi.

The drillship DANWOOD ICE has been contracted by Petro-Canada under CIDA loan started at the drilling site around beginning of October. Two twin engine helicopters have also been contracted by Petro-Canada for transportation of equipment and personnel from Karachi to the drillship. Emergency plan is also being prepared for meeting any emergency requirements.

OGDC's first exploratory well PAKCAN well No.1 is located 129 km south of Karachi in the Indus Offshore Basin in a water depth of 70 m. The well has been located at one of the three seismic structures mapped as a result of the seismic surveys carried out during 1982-83 under Norwegian Techno-Financial Assistance and is projected to be drilled down to 3500 metres to test the possible oil bearing formations of Miocene age. It must be noted, however, that in spite of very high potential of the area it is very difficult to predict outcome of the project at this stage.

The offshore Pakistan comprises of more than 265,000 sq.km of exclusive economic zone with high geological prospects. In the past eight exploratory wells have been drilled in the Offshore Pakistan Waters by the different oil companies but none of these wells could test the prospective formations due to the technical difficulties. Thus, the planned drilling if successfully completed, will provide for the first time the complete well data package to assess the full potential of the area on a scientific basis.

7.6. Egypt

In Egypt the necessary arrangements to meet with people from the Egyptian General Petroleum Corporation and ENPPI was made.

7.6.1. UNIDO meeting

Egypt knows very little about UNIDO, but is of the opinion that it is very important that one of the UN organizations takes the responsibility of starting something within the offshore industry.

- Dates: No comments.

- Topics: The topics suggested are very good, but Egypt would like to add the following topics:
  - Standardization of Design
  - Safety
  - Maintenance Systems. (Has units that haven't been inspected since 1968).

- Program: Egypt are going to prepare themselves very well and would like to bring with them projects that should be discussed during the conference.

In Egypt's opinion, UNIDO should pay the total cost of taking the participants to Norway.

Egypt could be interested in arranging an Offshore Conference within some few years.

7.7. Algeria

7.7.1. U.N.D.P.

The Res Rep, Mr Wealey was out of the country on a mission. I was therefore met in the office by Mr Salaheid, and informed him about the reason for my visit, and my mission. Mr Salaheid was very much in favour of the the meeting, and mentioned that Algeria, during the past years, had tried to solve their own problems, but now the interest was growing to learn and get new ideas from other countries. He thought Algeria could be interested in sending a person on the ministry level, to meet with Norwegian ministers as well in order to discuss Industry Joint Ventures with Norway.

The program officer Mr Abdallah Hebbadj had made arrangements with the Ministry of Energy and SONATRAC. (Exploitation of oil fields).

As the representatives of the Ministry and SONATRAC only spoke french, the U.N.D.P. was kind enough to help me with a very good interpreter, that was of great help.

7.7.2. UNIDO meeting

Today Algeria has no activity within offshore drilling or production, but they are planning to go offshore if two wells, (drilling was

started on 23 October this year), gives indications of oil and/or gas. On this behalf, representatives from the ministry and Sonatrac have great interest in joining the UNIDO meeting.

None of the persons visited new anything about UNIDO and were very interested in the information given by me. The two main questions were:

- What is UNIDO
- What kind of help can we get from UNIDO
  - Technically
  - Economically

They expressed highly their gratitude that UNIDO had taken the initiative of arranging such a conference, and hopes that this is only the first step, that can be continued by formal projects.

The ministry would like to be represented at the conference, if possible by Mr Bensming himself and they would very much like to join both the UNIDO meeting and ONS 86.

The persons met didn't have any comments concerning our suggestion about:

- time
- place
- topics
- program

of the UNIDO meeting.

In their opinion, Legislation, Norwegian experience and training of personnel was of great interest.

7.7.3. Present status and future plans

As mentioned before, Algeria, today have no activity within the Offshore Industry. All their drilling capasity is used within Onshore drilling and production. Six wells are drilled. In 1986, two more drilling towers are going to be built.

The country has a lack of expertice, experience, money and equipment. If it's possible to get more money in 1986, the Offshore drilling will be increased.

8. SUMMARY

All of the countries visited from October 3 - 31 1985, were very much in favour of the UNIDO conference. Most of them expressed their thanks to UN, taking the initiative to arrange such a conference, giving representatives from developing countries the possibility of meeting and discussing common problems.

Norway, not so many years ago, was also a developing country within the Offshore Oil Industry, but today they are one of the leading countries as far as Offshore Hi-Tech experience and knowledge is concerned. The representatives from the developing countries are looking forward to meeting the Norwegian experts, share from their experience and discuss possible joint venture projects.

8.1. Dates

The conference is planned to be arranged from Thursday, 21 to Sunday, 24 August 1986 at Sanderstølen Hotel, followed by ONS 86 in Stavanger, from Tuesday, 26 to Friday, 29 August. Most of the countries were afraid that three days was too short a time to arrange a successful meeting. and that we should use four working days: 20 - 24 August.

8.2. Topics

All of the countries were very much in favour of the topics suggested:

- Legislation, Policy, the Norwegian model, Maintenance, Quality Control, Safety.

- Contracts/Subcontracts - standards.

- Norwegian Experience - Engineering and Products.

- Training of Operation and maintenance people.

- Infrastructural development:
  - Legislation
  - Engineering
  - Products.

In addition to this, the following topics were suggested:

- Marine environment
- Management of Offshore Projects
- Logistics
- Foreign and on-the-job training
- Standardization of design
- Safety
- Inspection and maintenance systems, equipment and routines.

The working group has to decide as soon as possible which topics are going to be discussed during the UNIDO meeting.

8.3. Program

Most of the countries were in favour of the following:

1. The meeting starts with a plenary session, giving the headlights of the meeting and presentation of the participants.

2. Each day should be divided into two parts:

   - Morning session. Plenary session, where Norwegian experts present their papers within spesific topics.

   - Afternoon sessions. Parallel sessions. Work shops, discussing problems and projects within the different topics.

   Each delegation should have prepared a paper about the present situation within the country, concerning the spesific topic discussed. A summary should be presented by one person from each of the delegations.

The workshops should consist of delegates from the developing countries, together with Norwegian experts, within the different topics.

3. The last day a plenary session should be arranged, giving the results of the workshops, and presenting future UNIDO/Norway projects.

8.4. Participation

All countries were interested in joining both the UNIDO meeting and ONS 86.

Some of the countries
- China
- South Korea
- Pakistan
- Egypt
- Algeria

would meet with ministers or people at the ministry level.

The working group is going to make arrangements and appointments with Norwegian ministers to meet with the delegates, either in Oslo, Stavanger or at Sanderstølen.

The countries would like to meet with 3-5 people and they would like to get information about costs and payment as soon as possible.

The final program should be sent to the different countries in May 1986, at the latest.

8.5. Timeschedule

November 85 Report from the trip made by Mr B Johannessen has been sent to UNIDO.

December 85 Meeting with representatives of UNIDO discussing the result of the visit. Should other countries be visited?

Meeting with the arrangements committee, Oslo.

Contacts should be made to the Norwegian Government.

February 86 The arrangements committee finalizes the program:
- Topics
- Speakers
- Visits.

April 86 Invitations are sent to the different countries that are going to participate in UNIDO meeting.

9. CONDITION

The visit made has given us a very good input to use, making the final program for the UNIDO meeting, and also to prepare and motivate the people.

It should also be discussed the possibility of visiting the remaining countries that have been suggested tc take part in the UNIDO meeting.

UNIDO should send information about the organization; how they are working and the type of help that can be offered to the different countries and persons met as soon as possible.

As a consultant, I was satisfied with the result given and would like to thank the different U.N.D.P. offices for the help given.

DRAMMEN, NORWAY

November 1985

Bjørn Johannessen