



**INTSOK Annual Report 2005**

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# Introduction



**Gulbrand Wangen**  
Managing Director, INTSOK

The Norwegian petroleum cluster is now making huge efforts to expand its international business activities in order to capitalise on the international market opportunities. The Norwegian petroleum industry is currently involved in many of the most challenging global projects, from the North Sea to Arctic conditions in Sakhalin, North Caspian and the Barents Sea, and to the deep waters off West Africa, Brazil and Gulf of Mexico. Turnover from international activities shows significant growth and reached its target of NOK 50 billion in 2005, up from NOK 34 billion in 2003.

INTSOK's activities are also expanding. Twenty-four new companies joined as partners, bringing the total to 143 by the end of the year. The INTSOK ambition is to assist in the international expansion of the petroleum cluster by providing market and project information to the partners, and communicating the capabilities of the Norwegian supplies industry to key clients in overseas markets.

## SATISFIED PARTNERS

The latest survey shows that the partners are very satisfied with INTSOK's contributions. The partners rank client meetings abroad, international client meetings held in Norway, as well as the network meetings held in Norway as the most important initiatives. Forty-nine percent of the active partners said in the 2006 survey that INTSOK had made significant contributions to their international business.

In the survey the founders of INTSOK and other stakeholders state, without exception, that INTSOK has been a success and is an important organisation for the internationalisation of the Norwegian oil and gas sector. The foundation's strength is its ability to draw upon the partners' joint knowledge and experience. The many small and medium-sized companies benefit from the exchange of experience from the markets at INTSOK's network meetings.

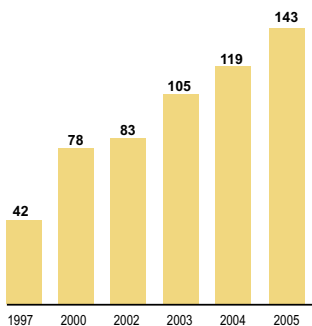
INTSOK initiated a major effort in 2005 to increase the partners' knowledge and understanding of how to deal with corruption and challenging business practices. The partners have been provided an update on relevant Norwegian and international legislations and conventions related to corruption, and case studies have provided opportunities for experience exchange. As a result, INTSOK has developed anti-corruption guidelines for employees and INTSOK oil and gas advisors.

## 15 FOCUS COUNTRIES

INTSOK is focusing its activities on 15 countries. China was added in 2005, while India, Malaysia and Libya were added in 2006.

One of the highest priorities is to open the doors for partners with operators for major projects and with national oil companies that are becoming increasingly important. INTSOK frequently updates information on more than 60 priority projects globally.

Number of INTSOK partners



## The industry are setting the priorities

# Focusing our efforts on key markets



The information is available on INTSOK's intranet.

The Norwegian government is an active participant in the many international initiatives. The Ministry of Petroleum and Energy is an integral part, together with the companies, in promoting Norwegian expertise and technology abroad.

The INTSOK secretariat is based in Oslo with an office in Stavanger. INTSOK has also engaged oil and gas advisors in Angola, Nigeria, Brazil, the US, China, Mexico, Russia and Iran. Their local knowledge and experience adds value to the internationalisation efforts undertaken by the Norwegian petroleum cluster. The international market is currently grow-

ing at an exceptional rate, offering major opportunities for a competitive Norwegian oil and gas industry.

# Oil & Gas Developments in Arctic and Cold Regions

## - Expanding the activities in Russia

**Russia has the largest combined oil and gas resources in the world. Attractive hydrocarbon basins such as Timan Pechora, the Arctic Barents Sea, North Caspian, East Siberia and Sakhalin are growing in importance. As much as a quarter of the world's undiscovered energy resources may be located in the Arctic, of which a major proportion lies in the Russian Arctic.**

The Barents Sea may become one of Europe's most important energy provinces in the foreseeable future. Offshore development activities have started both in the Norwegian part of the Barents Sea and in the Pechora Sea on the Russian side. New resources are being discovered, although far more exploration activities are needed.

### “SEA OF COOPERATION”

The Norwegian Government's vision is to develop the Barents Sea into a “sea of cooperation” where the combined experience and know-how of Norwegian and Russian oil companies and authorities will create the best possible conditions for efficient development of the petroleum resources in the northern waters. The aim of the Barents 2020 initiative is to stimulate development of the new expertise and technology, which are prerequisites for petroleum operations in the far north. Barents 2020 is also focusing on how to reconcile petroleum technology and environmental considerations in the sensitive marine ecosystem of the High North.

Russia is one of the most important markets for the Norwegian petroleum cluster. The market is expected to develop favourably in the years to come. The Norwegian oil industry is well positioned as a result of the experience gained through challenging

NCS projects and the land-based Ormen Lange and Snøhvit facilities. Solutions which include subsea production and on-shore process facilities will be of particular relevance for future field developments.

Norwegian companies have secured a significant share in the development of the Prirazlomnoye field in the Russian sector of the Barents Sea and are aiming to play a major role in the development of the Shtokman field. Several INTSOK partners have conducted studies for oil companies associated with the Shtokman field. The field, to be developed by Gazprom, is one of the world's largest offshore gas reservoirs, located 555 kilometres northeast of Murmansk.

Overcoming the challenges associated with a sensitive environment and extreme climatic conditions will be of utmost importance in the execution of projects in Arctic areas. The Norwegian petroleum cluster is well placed to provide know-how, technical solutions and valuable experience for Arctic field development and product transport.

### THE PARTNERSHIP PROGRAMME

INTSOK has significantly stepped up its activities in Russia in 2005 and launched the first partnership programme between Russian and Norwegian oil and gas indus-



**Håkon Skretting (right),**  
Regional Director for Australia,  
China and Russia

**Vladimir Ryashin,**  
INTSOK's Oil and Gas Advisor  
in Russia



*The construction of the concrete gravity-based substructure Lun-A is considered one of the largest foreign direct investment projects underway in Russia (Photos: Aker Kvaerner).*



try. The initiative has been welcomed in both countries. The aim of the project is to:

- Support increased partnership between Russian and Norwegian oil and gas industry with focus on the Arctic region,
- Support Russian ambitions of increasing the involvement of local industries
- Support the internationalisation of Norwegian and Russian technology and services

The project is backed by leading Russian and Norwegian companies and industry associations. By the end of 2005 some 150 companies in northwest Russia, in-

cluding St. Petersburg, had been mapped. Companies located in other parts of Russia will be added in 2006. A series of match-making workshops will be organised in 2006 and 2007 in Moscow, St. Petersburg, Murmansk, Arkhangelsk and Volgograd. Both Statoil and Hydro have established ties to Russian universities and are actively supporting the development of future Russian suppliers to the oil and gas sector.

#### **ATTRACTING LARGE AUDIENCES**

INTSOK organised a number of conferences, seminars and workshops in 2005 in order to expand the relations between Russia and Norway. The Norwegian government has been an active supporter of



the initiatives. Prime Minister Kjell Magne Bondevik gave the opening address at a roundtable on partnership in sustainable petroleum activities during his visit to Russia in June 2005. The roundtable discussions were chaired by the Norwegian Minister of Petroleum and Energy, Ms. Thorhild Widvey.

The Russia-Norway Oil and Gas Conference in Stavanger in January gave a broad perspective of the Russian market and provided substantial networking opportunities, whilst a substantial number of people travelled to the Oil and gas seminar in Arkhangelsk in April. INTSOK worked in close cooperation with the Barents Secretariat and the Barents Regional Council to organise the activities.

The Moscow and Volgograd week in May was opened by Ms. Widvey. The main focus in Volgograd was on Lukoil's activities in the Caspian Sea. INTSOK also participated in a Mission to Vladivostok and Nakhodka, to attend the "Pacific Offshore Conference" and to see the completion of two concrete gravity based structures built by Aker Kvaerner for the Sakhalin2 consortium. Aker Kvaerner has enhanced the local capabilities and prospects by delivering the large structures on time. The Russian Arctic Offshore/CIS 2005 was a major event. Norway was represented with the largest number of foreign participants. INTSOK was nominated as a supporting organisation for the event and gave a keynote presentation on The Project for Partnership.

#### **ARCTIC AND COLD REGIONS - HIGH ON OIL COMPANIES' AGENDA**

INTSOK seeks to build solid, long-term customer relationships by being recognized as a partner that is able to increase customer value creation. During 2005 relations with several key customers were strengthened as a result of increased interest in the Arctic and cold regions.

INTSOK developed a catalogue of the



*Norwegian Petroleum and Energy Minister Thorhild Widvey together with Håkon Skretting promoting Norwegian businesses in Russia (Photo: INTSOK).*

Arctic experience and competence in the Norwegian petroleum cluster as part of the preparations for the traditional Houston Summit in February, where development of the Arctic resource potential was the main theme. International oil companies showed considerable interest in exchanging experience with the Norwegian oil industry. The discussions during the Houston week attracted key people from the oil companies.

The Arctic theme also dominated INTSOK's business missions to leading oil companies such as Shell and Total. INTSOK's five-year tradition of meetings with the French energy cluster was upgraded to a seminar with Norwegian authorities and high-level French industry participation. INTSOK was also requested to address the cold climate issues during the annual London Week, where leading UK companies attended the Norwegian companies' presentations.

# Gulf of Mexico remains the top priority

The US Gulf of Mexico remains one of the largest markets for the Norwegian petroleum cluster. Deepwater development in the Gulf of Mexico continues to be the driving force in Gulf production and potential growth. In INTSOK's annual market report, a report provided by Douglas Westwood, an estimated USD 75 billion will be invested in developing the oil and gas potential in the Gulf of Mexico in the period 2006–2009. Many of the projects are defined as world-class projects of significant interest to the Norwegian petroleum cluster.



**Knut Aanstad,**  
Regional Director for USA  
and Canada

The Gulf of Mexico remains one of the most attractive hydrocarbon provinces in the world and the interest for new acreage is high. Both Statoil and Hydro are expanding their activities in the region. Statoil acquired EnCana's portfolio and Hydro acquired Spinnaker in 2005. Ten new deepwater oil and gas discoveries were reported by operators and licensees in 2005. Two Chevron discoveries, Big Foot and Knotty Head, and BP's Stone discovery have been singled out among the most interesting.

## **BLIND FAITH-CONTRACT**

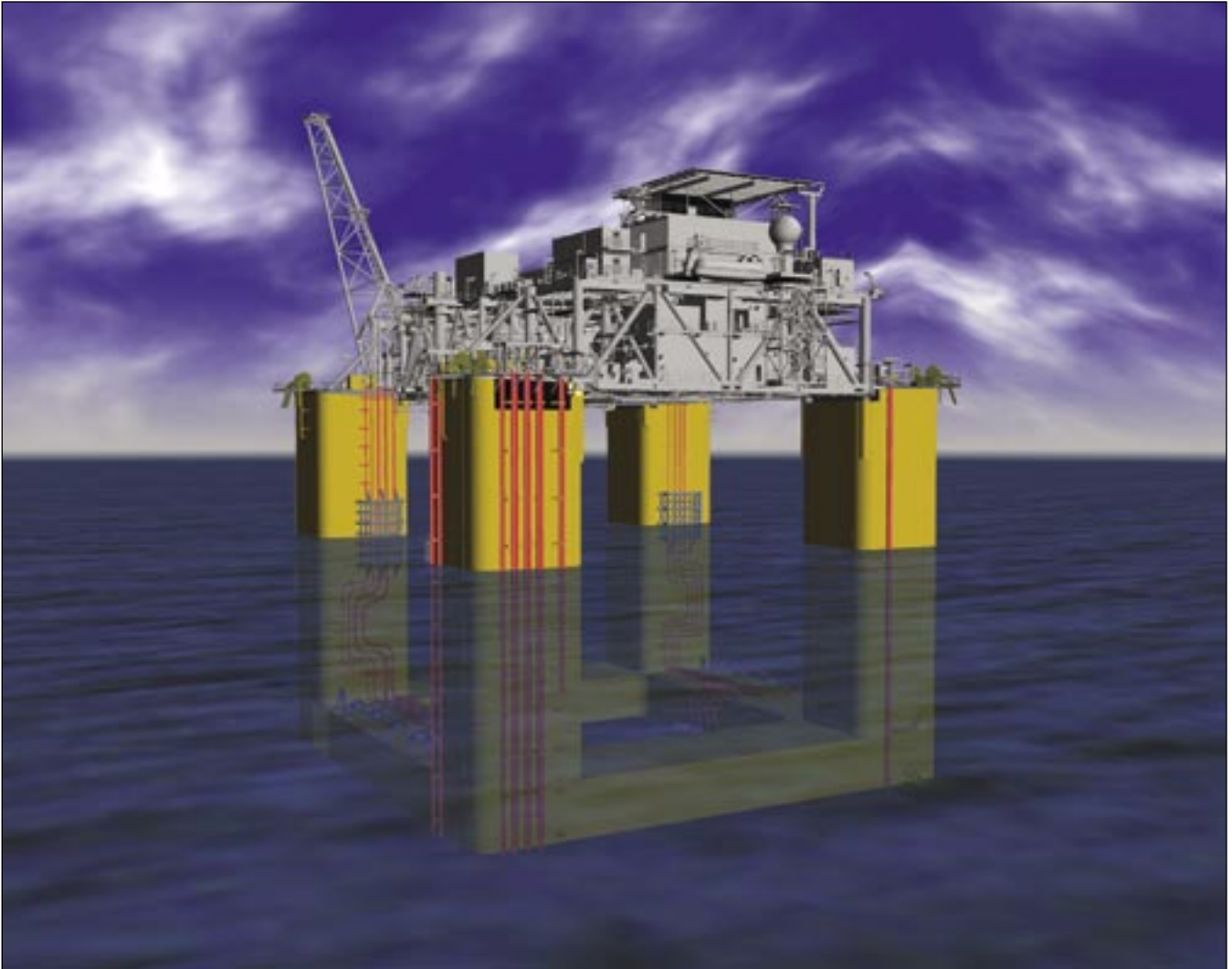
The Norwegian petroleum cluster continues to win major contracts. One of them was awarded by Chevron to Aker Kvaerner for the semisubmersible hull and mooring system for the Blind Faith project. Aker Kvaerner's scope of work includes engineering, procurement, construction and transportation. The Blind Faith semisubmersible will be delivered using several Aker Kvaerner entities such as Aker Kvaerner Verdal, Aker Kvaerner Engineering & Technology and Aker Marine Contractors. Aker Kvaerner Subsea has also been awarded a major contract for two subsea pump stations for use on the King field. The installation will set a new world record by applying this technology in deep water and more than 29 kilometres from the platform.

## **A HIGH-PRIORITY MARKET**

During 2005 INTSOK has maintained its high activity level in Houston, focusing on the main oil companies and contractors. The annual Houston Week is important for relationship building and for partners to present their capabilities. Thematic workshops with selected clients and targeted client meetings to discuss upcoming projects are also providing the Norwegian petroleum cluster with opportunities to expand their customer relations.

The Houston Week was upgraded due to the official visit by His Majesty King Harald V and Her Majesty Queen Sonja in March. The US – Norway Oil and Gas Industry Summit, open by the His Majesty King Harald V, attracted substantial interest. The event was part of the celebration of Norway's 100 years of independence, and almost 350 people from the oil industry participated. Among the distinguished speakers were Ms. Thorhild Widvey, the Norwegian Minister of Petroleum and Energy, Mr. John Doyle Ong, US Ambassador to Norway, Mr. Lee Raymond, Chairman and CEO, ExxonMobil, Mr. James J. Mulva, Chairman and CEO, ConocoPhillips, Mr. Tore Torvund, Executive Vice President, Hydro and Mr. Henrik Carlsen, Senior Vice President Barents Region, Statoil.





*Artist impressions of Aker Kvaerner's semisubmersible production platform for the Blind Faith project (Photo: Aker Kvaerner).*

The summit, and the many workshops, addressed the challenges and opportunities in developing the oil and gas potential in Arctic and cold waters. The INTSOK delegation was headed by Elisabeth Berge, Permanent Secretary in the Ministry of Petroleum and Energy, and included close to 50 INTSOK partners. They met with Chevron, Shell, ExxonMobil and ConocoPhillips. The oil companies presented their technology challenges and outlook, and INTSOK partners had an

opportunity to respond by presenting their Arctic technology and know-how.

INTSOK was also present at the OTC Exhibition and Conference in May together with Innovation Norway Houston at the Norwegian pavilion, whilst the USA Pipeline & Riser Week in November provided partners with an opportunity to meet all the major oil companies and contractors.

# The UKCS is beyond its peak – but still a major market

The UKCS market has for many years been the largest – and most important – market for the Norwegian oil industry. Some 25 percent of the Norwegian industry's total international turnover has been in the UK.



**Berit Rynning,**  
Regional Director for Kazakhstan,  
UK and Venezuela

The UKCS is now a mature market, with significant expenditure on maintenance, modification and operations. The UKCS continues to attract many new entrants and the exploration activities are substantially higher than on the Norwegian continental shelf. Around 80 exploration and appraisal wells were drilled in 2005, with a similar level of activity expected for 2006. The UK government awarded 152 news licenses to 99 companies in the 23rd licensing round.

## EXPANDING COOPERATION

The UKCS market will be of significant interest to INTSOK partners for years to come. Many small and medium-sized companies are successful in the UK. The cross-border cooperation has been expanded. One of the joint initiatives is the UK & Norway Share Fairs, which was arranged in Aberdeen and Stavanger.

Cooperation across the border was also the theme for the "British and Norwegian Oil and Gas Industry Seminar" in London, opened by HRH Prince Philip, Duke of Edinburgh and HM King Harald V. Speakers at the event were Lord Browne of Madingley, BP; Helge Lund, Statoil; Tore Torvund, Norsk Hydro; Tom Botts, Shell; Sir Ian Wood, Wood Group; and R. Rasmus Sunde, INTSOK/Vetco International.

The Offshore Europe Exhibition in Aberdeen in September attracted the highest

number of participants ever, an increase of 23% from 2003. More than 100 Norwegian companies attended.

## MEETINGS

The London week 2005 in June provided INTSOK partners with an opportunity to develop their relations with key clients such as BP, KBR/M.W. Kellogg and Foster Wheeler. Main themes that were requested by the client companies, included subsea and deepwater technology, onshore terminals and technology for cold climate. INTSOK also organised the annual Aberdeen Week in November, where 10 partners met the Wood Group, J. P. Kenny, Marathon, Petrofac, Talisman and Aker Kvaerner. The meetings focused on:

- Produced water treatment,
- Subsea tie-backs (increasing distance, lower cost, utilise existing infrastructure, fast track),
- Facilities Integrity (extending infrastructure life, reduce flaring and gas emissions).

# The growing role of West Africa in the global oil and gas markets

**West Africa's role in the global oil and gas market is rapidly being expanded as new deepwater fields come on stream and new countries join the number of oil and gas producers.**



*Shell's oil and gas terminal at Bonny Island in southern Nigeria's Niger Delta (Photo: Scanpix).*

Africa already plays an important role in world oil markets, contributing more than 10 million barrels per day to the world's oil supply. With ongoing exploration, including in deepwater and ultra deepwater regions, Africa is likely to be a source of significant additional oil and gas supplies over the next twenty years.

Angola and Nigeria are the two leading oil and gas producers in West Africa. More than USD 15 billion annually will be spent in the two markets over the next five years on deepwater projects, LNG projects and new refineries.

Mauritania is one of the new oil producing nations in West Africa. The Chinquetti field is operated by Woodside. The Norwegian

petroleum cluster, led by Bergesen, Vetco Aibel and FMC Technologies, has made major contributions to the development of the country's first oilfield, which came on stream in February 2006.

A growing number of African countries have joined the Extractive Industry Transparency Initiative (EITI) and committed themselves to more openness and transparency in the oil and gas sector. Nigeria has been one of the leading EITI countries and has implemented a major audit of the country's oil and gas revenues.

Development of local content is a high priority for many governments. INTSOK is involved in capacity building projects in both Nigeria and Angola.



**Per Hagen,**  
Regional Director for Angola,  
Nigeria and Malaysia

# Nigeria - deepwater and LNG in focus

**Nigeria produced an average of more than 2.5 million barrels of oil per day in 2005 and has embarked on an ambitious plan to increase its daily production to 4 million barrels by 2010. Massive investment is also being poured into building liquefied natural gas (LNG) plants.**



**Moses Ovigho Kragha,**  
INTSOK's Oil and Gas Advisor  
in Nigeria

Annual expenditure is forecasted to increase to some USD 12 billion in 2008. The growth will primarily be driven by the continued increases in offshore activity, and specifically the continued exploration and development of deepwater acreage, and a growing utilisation of gas reserves.

## **EXPANDING PRESENCE**

Statoil, Hydro and several INTSOK partners are well established in the Nigerian oil and gas sector. FMC Technologies is expanding its presence as a result of being awarded the Agbami subsea contract. Transforming the oil and gas wealth into economic growth, and reducing poverty and corruption, are key political objectives in Nigeria. The government is looking for ways to maximise the benefits from the oil and gas activities by creating new jobs and building a competent and capable local industry. INTSOK has been actively involved in the dialogue around local content policies in Nigeria and in ways to enhance the fabrication capabilities in the local oil and gas industry.

The aim of the project is to develop training and consulting programmes in order to enhance capabilities of Nigerian companies, thereby enabling them to acquire the skills needed for performing fabrication work for the offshore and subsea market according to ISO 9000 standards. The project will cost around NOK 18 million. NORAD has committed 40 percent of the budget and Statoil, Hydro, Aker Kvaerner and FMC Technologies will fund 10%. Nigeria will provide the remaining 50% through the Petroleum

Technology Development Fund and the Nigerian National Oil Company. IFC/PEP Africa, a part of the World Bank, will manage the project on behalf of the funding organizations.

Some 20 companies were visited by a DNV- led team of seven INTSOK partners, specialized in fabrication. The team has been involved in developing the capacity building programme. Seven or eight Nigerian companies have been proposed as candidates for the two-year project that is scheduled to begin in the autumn of 2006. The fabrication project will also aim to support links between Norwegian and Nigerian companies.

## **TECHNICAL SEMINARS**

For several years INTSOK has been organising technical seminars in Nigeria in co-operation with the Department of Petroleum Resources (DPR) under the aegis of the Nigerian-Norwegian MoU, signed in 2000. A seminar on Drilling and Well Services introduced the participants to "state-of-the-art" technology and practices from the NCS with respect to available products, systems, methods and operation of drilling equipment and well services. Close to 100 participants signed up for the seminar, which represented local oil and service companies, universities, the DPR, institutions and international oil and contracting companies. The Nigeria Subsea Technology Seminar stimulated lively discussions, and interaction between INTSOK partners and the Nigerian oil and gas industry. The seminar attracted 150 people.

# Large deepwater projects driving growth in Angola

**Angola holds an enviable record of exploration success and associated rapid reserve and production growth. The remaining potential is significant. Oil production is expected to double over the next five years.**

Angola will see its oil production grow more than 200% from 2000 to 2010. The Angolan economy will experience a massive windfall profit from the oil sector during the second half of this decade and throughout the next. Improvements in the areas of corporate governance, transparency and institutional capacity are also on the agenda.

Major development projects such as Greater Plutonia, Dalia and Kizombe C are underway. Sonangol and Hydro are also developing the Gimboa prospects in block 4. Angola has increased focus on the utilization of gas for LNG.

## **LARGE OFFSHORE OIL RESERVES**

Most of the leading international oil companies are present in the Angolan deepwater regions and the country has become one of the most interesting oil provinces outside Norway for the Norwegian petroleum cluster. Discoveries of oil offshore Angola in recent years have been some of the world's largest. Both Hydro and Statoil entered Angola in the early 1990s and have become major investors in the country's oil and gas sector. The leading Norwegian contractors, Aker Kvaerner, FMC Technologies and Vetco have been winning major subsea contracts in the deepwater projects.

A Norwegian Industry Seminar in June 2005 attracted a large number of high level participants. Two Norwegian State

Secretaries from the Ministry of Petroleum and Energy and the Ministry of Foreign Affairs addressed the seminar and met with government officials and the leadership in the national oil company, Sonangol. INTSOK continues to organise technical seminars in Angola in close cooperation with the Angolan Ministry of Petroleum and Sonangol. The aim is to transfer competence and technology to the Angolan industrial cluster and to the Angolan authorities. The 2005 event in November addressed the development of marginal oil and gas resources, with special emphasis on technology.

## **TRAINING THE TRAINERS**

INTSOK partners have concluded a successful capacity-building project in Angola. The "Train the trainers" has qualified technicians to become involved in subsea technology and installation.

FMC Technologies, Vetco, Aker Kvaerner, the Norwegian Ministry of Petroleum and Energy and NORAD have sponsored a major subsea training course for the National Petroleum Institute in Angola. Teachers from the Institute have had an extensive training course in Norway before they began teaching Angolan students. Some 50 students have been offered jobs in the Norwegian companies.



**Emílio Moreso Grion,**  
INTSOK's Oil and Gas Advisor  
in Angola



# Brazil – an exciting deepwater market

**Brazil maintains its role as a global centre for deepwater offshore exploration and production. Annual expenditure is growing substantially towards an annual level of more than 8 billion dollars per year, making the country one of the world's largest offshore markets.**



**Gulbrand Wangen (left),**  
Regional Director for  
Brazil and India

**Johnar Olsen,**  
INTSOK's Oil and Gas Advisor  
in Brazil

The national oil company, Petrobras, is the largest deepwater producer in world and has a number of large projects under development. Petrobras is investing substantially in new technology for deep and ultra-deep waters. Many of the new projects are based on FPSO solutions.

## **CHINOOK PROJECT**

International oil companies are expanding their activities. Norsk Hydro has acquired a share in the Chinook project, planning to develop the field, together with the operator Kerr McGee, based on the experiences from the Grane field in the Norwegian North Sea. The field is the first on the NCS to produce heavy crude oil, very similar to the oil in the Chinook field. Grane has been able to produce far above expectations.

INTSOK has over the years established good relations with Petrobras and maintains a good dialogue on joint activities in Brazil and Norway. Thematic workshops and seminars to exchange experience and knowledge are important elements in the discussions between Petrobras and INTSOK partners.

## **GAS FIELD DEVELOPMENT SEMINAR**

In 2005 a joint Offshore Gas Field Development Seminar provided an arena for exchanging experience on recent gas field development projects and presented technologies and solutions which could be appropriate for Brazilian waters and in particular the Mexhilão project. Petrobras considered the seminar to be successful.

In addition, some companies concluded contracts for further studies and prepared sales of software products while others improved their positions as future suppliers to gas field development projects in Brazil.

The Norwegian oil industry also made a strong impression at the Deepwater Offshore Technology Conference (DOT) held in Vitoria in November. A third of the papers at the conference were of Norwegian origin.

Innovation Norway and INTSOK have recruited a joint oil and gas advisor in Brazil to service both organisations. It is first time the two organisations have joined forces in personnel recruitment, a co-operation which has proved to be successful.

# Mexico – moving towards deeper waters

Mexico is the second largest offshore producer in the world, after Norway. The national oil company, Pemex, has a monopoly in the E&P sector. The company is currently in the middle of a major investment programme to avoid declining oil production. The giant Cantarell field is maturing and Mexico needs to develop new deeper water fields to maintain, and increase, future production levels.



*Mr. Odd Hjelmeland and Mr. Bernt Osthus celebrate with new ResLab colleagues in Mexico after acquiring 51% of the Mexican laboratory service Geos (Photo: Reslab).*



**Werner Karlsson (right),**  
Regional Director for Iran, Middle East, Mexico and North Africa

**Javier Estrada Estrada,**  
INTSOK's Oil and Gas Advisor in Mexico

Mexico and Norway have developed close relations over several years. INTSOK has organised a number of business missions to Mexico. Several Norwegian suppliers are well established in the market. Bergeesen has won the contract to operate the FPSO that is producing the Ku-Maloob-Zaap field. Norsafe has lifeboat fabrication in Mexico and ResLab is operating a core analysis laboratory in the country.

In November INTSOK organized the third annual seminar on offshore petroleum exploration and production in Mexico with the support of Pemex, Statoil, Hydro and the Norwegian Embassy.

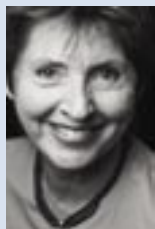
The seminar and meetings addressed the entire value chain in the oil and gas business, and presented the capabilities and experiences of the Norwegian offshore industry to Pemex and to local companies. More than 40 people from 26 companies were part of the Norwegian delegation, whilst 250 people from Pemex and the private sector in Mexico participated.



*Sincor Project is formed to develop the production and upgrading of extra heavy crudes from the Orinoco Belt for placement on international markets (Photo: Statoil).*

## Maintaining relations with Venezuela

**Venezuela has the largest proven conventional oil reserves in the western hemisphere and substantial volumes of extra-heavy oil and bitumen deposits, which could be as high as 270 billion barrels. The long-term plan is to expand production well beyond the current daily capacity of some 3 million barrels of oil. President Chavez has implemented major changes in the oil and gas sector, making the national oil company, PDVSA a key instrument.**



**Berit Rynning,**  
Regional Director for Kazakhstan,  
UK and Venezuela

Venezuela has opened up new offshore acreage for international oil and gas companies. Chevron has made a significant gas discovery in the Plataforma Deltana area that could become the basis for a future LNG development.

INTSOK maintains good relations with the Venezuelan oil industry associations and PDVSA. The Norwegian model in developing a successful local oil and gas industry has been of special interest. The Norway-Venezuela Business Meeting was

arranged in Caracas in September, attended by 10 Norwegian companies and more than 20 local Venezuelan companies. Some of the Norwegian companies are evaluating the potential for collaboration with Venezuelan partners.

# Iran – major reserves and significant projects

Iran has the third largest combined oil and gas reserves in the world. Hydro made one of the largest global oil discoveries in Iran in 2005. A commerciality report for the Azar discovery in the Anaran block was submitted to Iranian authorities in December.



*Hydro's exploration well in Anaran (Photo: Hydro).*

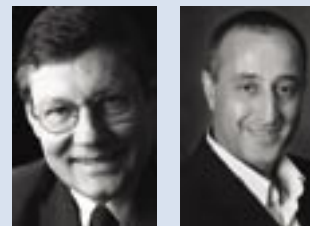
The Azar discovery is one of several giant fields that can be developed in the years to come. Iran is negotiating agreements with international companies to develop the Azadegan and Yadavaran onshore fields. Strategic deals between Iran and India as well as China are under discussion. INTSOK has increased its focus on Iranian onshore projects as a result.

The huge South Pars gas field is still under development. The next phase will include LNG projects. Statoil is involved in the development of South Pars 6-8.

In recent years around 50 Norwegian companies have been pursuing business opportunities in Iran and have delivered goods and services to the national oil

company NIOC and to the international companies that have been involved in the major projects in Iran

INTSOK has developed positive relations with Iran and the Memorandum of Understanding (MoU) between Iran and Norway has been a good platform for exchange of views and experience. In 2005 the MoU meeting was held during the Iranian Oil Show in April. The Norwegian State Secretary in the Ministry of Petroleum and Energy, Mr. Oluf Ulseth gave the opening address at a luncheon during the oil show. Innovation Norway, supported by the local INTSOK office in Tehran, organised the Norwegian pavilion at the exhibition.



**Werner Karlsson (left),**  
Regional Director for Iran, Middle East, Mexico and North Africa

**Mostafa Mansoori,**  
INTSOK's Oil and Gas Advisor in Iran



# China – driving global energy demand

China is now the second largest energy consumer in the world. Oil and gas demand is growing fast. China's strategy is therefore to expand their domestic exploration and production activities. Most of the production is still onshore, but exploration has increased in the Bohai Sea area and in the mouth of the Pearl River. New acreage in deeper waters has also been made available.



**Håkon Skretting (right),**  
Regional Director for Australia,  
China and Russia

**James Duan,**  
INTSOK's Oil and Gas Advisor  
in China

The Chinese oil and gas industry is expressing strong interest in developing closer ties with the Norwegian petroleum cluster. INTSOK's response has been to make China a priority market and has recruited Mr. James Duan as an oil and gas advisor in Beijing.

The LNG sector is also a potential market for the Norwegian petroleum cluster. LNG may play an important role in the future Chinese energy supply and more than 10 LNG receiving terminals are currently being planned

China's petroleum industry has undergone major changes over the last decade and the Chinese government has reorganised the oil and gas sector.

The three largest oil and gas companies, Sinopec, CNPC and CNOOC, have carried out initial public offerings in order to attract private owners. They are expanding internationally and may become important customers for the Norwegian petroleum cluster in many markets in the years to come.

In January 2005, the Norwegian Minister of Petroleum and Energy, Mrs. Thorhild Widvey, led a Norwegian business mission to China. A deepwater seminar was organised by INTSOK and Petrad, in cooperation with China National

Offshore Oil Corporation (CNOOC). The objective of the seminar was to discuss technology and experience transfer relevant to the increased deepwater activity off the coast of China. More than 100 delegates from the Norwegian and the Chinese oil and gas industry attended.

The Norwegian delegation also met with the top management of CNOOC, Sinopec and China National Petroleum Corporation (CNPC) to discuss increased co-operation in the oil and gas industry. A high-level Sinopec delegation visited Norway in August and attended INTSOK's International Oil and Gas Business Days.



*Lufeng is Statoil's first overseas subsea project (Photo: Statoil).*



# India – looking for deepwater reserves

**India also has ambitious plans to increase its oil and gas production to meet the increasing domestic demand for energy. Exploration activities in the waters offshore India have been ongoing for more than 50 years. The focus is now on the deep and ultradeep waters. In addition, India has major plans for the construction of new LNG receiving terminals.**

India's oil and gas industry has expressed strong interest in developing closer ties with the Norwegian petroleum cluster. INTSOK's response has been to increase its focus on the Indian market and on the Indian national oil company, ONGC, which is expanding its international activities. The Norwegian petroleum cluster can see a potential in the Indian offshore sector. The drilling activities are increasing and the focus is increasingly on the potential in deeper waters where the Norwegian petroleum cluster has a strong competitive advantage. INTSOK will work closely with Innovation Norway in planning the activities.

In May 2005 an Indian delegation from the Ministry of Petroleum and Natural Gas, ONGC and Reliance Industries Limited visited Norway and the Ministry of Petroleum and Energy as a part of the regular meeting in the Joint Indian-Norwegian Working Group. The delegation was trying to identify potential partners for Indian companies and to learn from the Norwegian experience in the oil and gas sector.

The Indian Minister of Petroleum and Natural Gas Mr. Mani Shankar Aiyar visited Norway with a delegation from ONGC, Reliance, Oil India Limited, the Oil Industry Security Directorate and the Directorate General of Hydrocarbons in August and attended INTSOK's International Oil and Gas Business Days. Mr. Aiyar invited the Norwegian petroleum cluster to expand their business in India. The national oil company, ONGC used the

visit to sign cooperation agreements with Hydro, Sintef and Roxar. The Norwegian Petroleum Directorate signed an MoU with their sister organisation, the Directorate General of Hydrocarbons, whilst the National Geophysical Research Institute of India signed an MoU with the Institute of Petroleum Technology and Applied Geophysics at the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway.



**Gulbrand Wangen,**  
Regional Director for  
Brazil and India



*From the left: Ms. Thorhild Widvey, Norwegian Petroleum and Energy Minister, Mr. Mani Shankar Aiyar, Indian Minister of Petroleum and Natural Gas, and Mr. Gulbrand Wangen, INTSOK's Managing Director (Photo: INTSOK).*

# Kasaghan – the big price in Kazakhstan

Kazakhstan is emerging as a major international oil and gas producer. The Kashagan discovery in the shallow waters in the North Caspian is one of the largest oil discoveries in the world in recent years and the development project is one of the largest.



**Berit Rynning,**  
Regional Director for Kazakhstan,  
UK and Venezuela



*Mr. Ole Imsland, representing RTEC signs a co-operation agreement with the Kazakh Ministry of Education and Nursultan Nazarbaev Education Foundation represented respectively by the Kazakh Minister of Education Ms. Byrganym S. Aitimova and Ms. Dinara N. Kolybaeva, Director (Photo: RTEC).*

Over the last couple of years INTSOK has established a close dialogue with ENI, the operator of the large Kashagan project. This entailed organised business missions to ENI in Italy, and facilitated meetings with the Kasaghan project team. Moreover, Aker Kvaerner has recently secured major contracts for Kashagan.

Kazakhstan has expressed interest in learning from the Norwegian experience. Development of local capabilities is a priority. In 2005 the Rogaland Training and Education Centre (RTEC) received a grant from the Norwegian Ministry of Foreign Affairs to prepare a programme for vocational training and university coop-

eration with Kazakhstan. INTSOK headed the steering committee and was facilitator for the pre-study phase of the project, which is well under way.

In connection with KIOGE 2005, INTSOK introduced "The Norwegian Day." The Kazakh Energy Minister, Mr. Shkolnik opened the seminar, where a wide range of Norwegian companies had the opportunity to present their capabilities.

A high-level delegation from Kazakhstan visited Norway in November to meet INTSOK partners to discuss Norway's experiences of developing a Norwegian-based petroleum cluster.

# Keeping a watchful eye on new market opportunities

**In recent years the Norwegian petroleum cluster has expanded its business activities in a number of international markets. INTSOK is working closely with the partners to assess where it can add most value.**

Three new countries have been added in 2006 due to the high level of activity and the competitiveness of the Norwegian petroleum cluster. These are India, Malaysia and Libya. Norway has also started a cooperation programme with Iraq, in which INTSOK is involved.

## **LIBYA**

Libya has returned to the global oil and gas scene. The country plans to more than double its oil output to 3 million barrels per day by 2015 through Increased Oil Recovery (IOR) projects, the development of existing discoveries and an aggressive exploration strategy. More than 100 international oil companies have showed an interest in the recent licensing rounds. Both Statoil and Hydro have delivered successful bids and have become operators in Libya.

The growing potential in the Libyan oil and gas sector has led to increased interest among INTSOK partners. A high-level delegation from the National Oil Corporation in Libya, as well as the Chairman of the Board of Agip Oil Libya, attended INTSOK's International Oil and Gas Business Days in August and met with the Norwegian petroleum cluster.

## **MALAYSIA**

Malaysia has attracted substantial foreign investments in the petroleum sector and currently has some 60 production sharing agreements with international oil and gas companies. New discoveries in deep waters have revitalized the oil and gas sector. Malaysia also has aspirations to become a technological hub. Aker Kvaerner and FMC Technologies are aligning themselves with this strategy.

Petronas, one of the most successful national oil companies, is expanding internationally. Technology development is an important part of the company's strategy.

Petrad has organised training activities in Malaysia for several years and has established a good network and position in the country that will be used as a platform for expanding the Norwegian presence through joint Petrad/INTSOK seminars in 2006.

## **AUSTRALIA**

The giant Gorgon gas area, discovered as far back as in 1981, is now under development. The multibillion dollar venture will further strengthen Australia's position as a major LNG exporter. New exploration initiatives have led to the Jansz find, another major gas field.

Many Norwegian companies have been active in the market for several years. INTSOK will now strengthen its own activities and provide more market and project information to INTSOK partners. In addition, the aim is to document the Norwegian petroleum cluster's expertise and competitiveness through workshops and seminars.

## **IRAQ**

In 2005 Norway signed a Memorandum of Understanding (MoU) with the Iraqi Ministry of Oil. The objective is to transfer knowledge and experience of value to Iraq as the country rebuilds its oil and gas sector. The focus of the initial cooperation is on data management, IOR strategy, training of Iraqis and development of an Iraqi oil industry.

A delegation from the Iraqi Ministry of Oil visited Norway in May to sign the MoU with the Norwegian Petroleum Directorate. INTSOK will coordinate a future industrial technology programme.

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