

Exploration and production business: emerging countries or emerging opportunities? (25 October 1995)

Caption: On 25 October 1995, François-Xavier Ortoli, former Vice-President and President of the European Commission, former French Minister for Economic Affairs and Finance and former President of the oil company Total, gives an address on frontier exploration and oil production in emerging countries. He also emphasises frontier exploration in offshore areas and unconventional crude oils, as well as the partnerships established in this sector by oil companies such as Total.

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**EXPLORATION and PRODUCTION BUSINESS :
EMERGING COUNTRIES OR EMERGING
OPPORTUNITIES ?**

Ladies and Gentlemen,

It is a great pleasure and honor for me to speak to this distinguished audience. I have been offered today to talk about exploration and production business in emerging countries.

The main challenge of the oil and gas industry in the upstream segment is the replacement of reserves and the companies have to investigate all possibilities to have access to such reserves.

If it is true that many areas within the last few years have open up to the petroleum industry, such as the former USSR, China, Vietnam, certain countries in South America and Africa. However, the upstream oil and gas business development is and will not be based only on these countries. Tremendous technological progress already achieved in exploration and production (3D seismic, horizontal drilling, EOR, subsea developments, etc...) coupled sometimes with innovative types of contracts or partnerships with national oil companies and governments, together with market evolution, for gas in particular, has open up access to existing non developed reserves in countries already open to the industry and sometimes considered as mature. These undeveloped reserves allow the company to increase its reserves base for the short and medium term. For the long term, more and more attention is paid to frontier exploration in some deep offshore areas and unconventional crude oils, both in emerging countries and in countries already open. Today, I would like to illustrate this point by showing you what my company has achieved during the first part of the 90's, by focusing its business not only in emerging countries, but, in fact, on various emerging opportunities with the objective to double its production (outside Middle East) over the period 1990-2000.

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In the world established provinces, there is an increasing maturity : less reserves per average new field are found as time goes on.

Cost cutting, new technology and market evolution allow, in some cases, to increase the exploration/production business in these areas. I would like to illustrate this point by taking two examples : The Dunbar field located north of Scotland and the Mahakam Delta permit in Indonesia.

- The Dunbar field is a typical example of an opportunity generated mainly by technological improvements. This field and its satellites contains some 280 Million boe. Dunbar's complicated reservoir has been developed economically at a development cost below 3 \$/boe by using various approaches and techniques which could not have been conceived five years earlier for such a field in this type of rough environment :
 - Integrated design and maximum use of spare capacity available on the nearby Alwyn North process platform ;
 - Minimum processing on Dunbar for a two phase flow of produced hydrocarbons through an innovative double well insulated pipe ;
 - Minimum drilling facilities by using a tender assisted rig ;
 - Optimization of reservoir development plan by use of 3D seismic and horizontal drilling ;
 - Satellites of Dunbar (Ellen and Grant) developed by subsea facilities.

This shows that new technologies can still provide additional reserves and, for the same reasons, established fields are constantly upgraded.

- Let's go now to Indonesia, and more particularly to the Mahakam delta permit which was in the middle of the 1980's considered as a mature area having already produced about 1 billion barrels of oil. Mid 1980's, TOTAL had identified already about 3 Tcf of gas initial reserves, and, at that time, LNG started to be in great demand, not only in Japan but also in Korea and Taiwan. A need for additional reserves to supply this increasing demand through the Pertamina Bontang LNG Plant was clearly established. A 2 years technical synthesis was then launched, covering the contract area, based on a multidisciplinary approach and carried on an integrated manner, using comprehensive data base, a modern approach to the petroleum systems of the Mahakam and defining new targets.

Today, this study has led to significant improvement in gas reserves in the Mahakam delta with the already existing TUNU field reaching more than 7 Tcf by improved delineation program and the discovery of the PEKIKO field representing about 5 Tcf. This will allow TOTAL to become the largest gas supplier to the BONTANG Plant after year 2000 and one of the largest gas supplier to the South East markets.

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These two examples show that even in mature areas, there remains possibilities and that it will still be possible to increase the exploration and production business in such areas. But obviously this is not sufficient to replace the large number of barrels produced every year, and there is therefore a need to go to other areas.

On the opposite end of the risk range is frontier exploration and I would like to illustrate this sector of opportunities by two areas in which TOTAL is involved: the Eastern Cordillera of Colombia, a country which has been opened for a long time to foreign oil companies and the Caspian Sea of Kazakhstan, this country being qualified as an emerging country.

In Colombia, BP, TRITON and TOTAL took an acreage where already 17 wells had been drilled and 13 companies had owned all or part of the acreage. The prospects were deep, difficult to drill and the structural configuration was complex and highly faulted, making this opportunity a frontier one. With a lot of perseverance and technical efforts, two large "giant" fields have been discovered (CUSIANA, CUPIAGUA), producing today around 180 000 b/d and forecasted to reach 500 000 b/d in 1998.

Here again, the combination of technical success and significant efforts made to overcome other difficulties like pipeline transportation through the Andes, handling of security problems, etc... has shown that, even in an already intensively explored area, it is still possible to build up a success story.

Let's now move to the ex-communist world, which can be classified, from a foreign E&P company standpoint, as emerging countries. It is true, and in particular in Russia, that we might have access to a lot of acreage. However, there are presently many drawbacks which lead us to carefully review each opportunity. First of all, the Russians have well done their exploration programs and it is difficult to find attractive prospects undrilled. Second, it is a real challenge to reduce costs in the often harsh environment. And third, but not least, legal uncertainties and complicated bureaucracy generating delays, make the overall risk of any venture not acceptable. This is why our activities in this country are presently very limited except for some studies which are going on and a pilot project on ROMASHKINO field.

In Kazakhstan however, we have found the overall risk more acceptable because of the size of the potential prospects which was considered as one of the best which can be found in the world. This acreage is near Tengiz, a ten billion barrel supergiant field. Further more, the commitment on a huge seismic

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program is shared by a group comprising large companies (MOBIL, SHELL, AGIP, BP/STATOIL, BRITISH GAS, TOTAL). However, various points remain to be resolved, in particular regarding the transportation of any crude oil production, but we are confident that they will be resolved.

In summary, these two examples show that, as far as frontier exploration is concerned, both emerging countries and already open countries present opportunities but that the challenges and the difficulties attached to them may be as difficult on both side. This is also true for the acreage offered onshore CHINA, in the Tarim basin, for example, where the various rounds opened have not proved to be very successful. That's the reason why some companies are looking more towards frontier exploration in deep offshore in already open countries (Gulf of Mexico - US ; Angola, Nigeria, Gabon, Congo - West Africa ; West of Shetland Basin - UK). TOTAL is also present in deep offshore plays in ANGOLA and WEST of SHETLAND.

The next type of source for reserve replacement that I would like to describe and which has allowed TOTAL to significantly improve its reserve base and production level is deals for undeveloped fields, generally in newly opened countries, but also in already open areas. These deals are generally concluded with national oil companies. There are attractive but often technically difficult and implying innovative contracts and partnerships with the national partner, private companies and sometimes financial partners. In TOTAL, we call these projects "3rd. type deals", the first type being "exploration deals" and the second "acquisition of companies".

In the first part of the 90's, TOTAL has been very active in this type of new deal and various projects have materialized such as :

- 1990 - THAILAND : BONGKOT
- 1991 - ALGERIA : HAMRA
- 1992 - MYANMAR : YADANA
- 1992 - VIETNAM : DAI HUNG
- 1993 - LIBYA : MABRUK
- 1993 - VENEZUELA : JUSEPIN
- 1994 - LIBYA : MURZUK
- 1995 - IRAN : SIRRI

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Other, like VENEZUELA ORINOCO Heavy Oil are still in discussion.

Other companies have successfully enter this type of deals, like :

- American/European Cies in South Caspian Sea In Azerbaïdjan
- Several Companies on Russian fields in West Siberia and Timan Pechora (TOTAL Is studying the Kharyaga project).
- ARCO on Rhourde el Baguel field In Algeria.

Obviously, exploration risk is almost non existant, but all these deals need careful and in depth technical studies, because they usually imply high development commitments. On the other side, there is often little time to assess all constraints and risks as in the usual exploration and delineation phase of a standard exploration/production project.

I would like now to take two examples to illustrate this type of deal : one initiated in the early 90's in THAÏLAND, an open country, and a more recent one finalized with IRAN, a potential emerging or say-reemerging country.

- In THAÏLAND, the demand for clean energy like gas has grown and will continue to grow at a very high rate. In this context, TOTAL has identified a field called BONGKOT, belonging to the national company PTTEP, which was undeveloped for various reasons, in particular technical difficulties (highly faulted, CO₂ content, etc...).

TOTAL has succeeded to establish a partnership with PTTEP and two other companies (BRITISH GAS and STATOIL), which is neither classic exploration nor straightforward acquisition of developed reserves, but which has proven successful, the partnership working very smoothly and the reserves being higher than anticipated (more than 3 Tcf). The production will reach soon 250 MMcfd for the domestic power market in THAÏLAND, with a potential to increase again towards the end of the century. One of the main challenges of the Bongkot deal is the planned transfer of the operatorship to the national company PTTEP, in 1998.

A few years later, TOTAL undertook to secure a similar type of deal with MYANMAR, based on its knowledge on the Thai gas market and the relationship established with PTT as purchaser of the gas. Today, TOTAL has been able to confirm the reserves of YADANA field at about 5 Tcf (the

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largest field of MYANMAR) and to secure the first import gas sales contract for power generation in Thailand.

These two deals generated not only numerous technical challenges, but also market and political risks, in particular for the MYANMAR project.

Today, YADANA is on the way to join BONGKOT as, we hope, another success in the supply of energy to THAILAND.

- In the MIDDLE EAST, which is a particularly strategic source of production, TOTAL has been holding for a long time a strong position, with presently 290 000 b/d produced from the Emirates and Oman. Today, TOTAL is also involved in major LNG projects in ABU DHABI, QATAR, OMAN, and more recently has materialized a new project in YEMEN, an already open country.

TOTAL moved back to IRAN and concluded a 3rd. type deal with NIOC in July 1995, We signed a contract for the development of SIRRI "A" and "E" fields, located offshore IRAN, close to DUBAI border. The particularity of this deal is that TOTAL will carry the technical studies, the delineation and the development of the fields up to the start up and will secure the financing of all related costs. In return, TOTAL will receive, under a buy back scheme, a portion of the production (anticipated to be around 120 000 b/d) equal to reimbursement of the expenses plus some remuneration. Furthermore, TOTAL and NIOC staff will work in very close relationship from the start of the project.

In summary and in general, the complexity of these 3rd. type deal, both on a technical and contractual point of views is often as great in already open countries than in emerging countries, this complexity being highly related to the specific characteristics of each project and the general environment of each country.

Reserves replacement has become a global issue and acreage availability alone does not mean easy reserve addition. All opportunities emerging either in already open countries or in new emerging countries should not be discarded but should be considered in the framework of the overall strategy of a company.

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For TOTAL, since the early 90's, the strategy has been as follows :

- Focus on core areas of South America, the North Sea, South-East Asia and Middle East.
- Consider gas as a major component of the company's international business.
- Frontier exploration in a few high potential areas.
- Select "third type" approaches on recognized potential giant fields.

Selectivity, maximum use of technology, creation of interdisciplinary teams, spirit of innovation in relationships with national oil companies are some ingredients necessary in the smooth implementation of such a strategy.

The result of this policy is that TOTAL will double its production outside the Middle East over this decade, while reaching at the same time one of the highest reserves replacement rate and one of the lowest replacement cost of the industry.

EMERGING COUNTRIES ? EMERGING OPPORTUNITIES ? I think that we should definitely monitor all emerging opportunities, in emerging countries or already open and producing countries in order to be in a position to select the best one at the right time.

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