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Hunting Elephants in Asia: Are Strategic Alliances the Answer for Independents

Dennis Stickley
HUNTING ELEPHANTS IN ASIA: ARE STRATEGIC ALLIANCES THE ANSWER FOR INDEPENDENTS?*

Dennis Stickley†

I. INTRODUCTION

The track record of experienced, well-financed independent oil companies demonstrates that this segment of the energy and production (E&P) industry has been responsible for discovering more oil in North America than the integrated majors.1 Independents have an opportunity to repeat this performance in the Asia-Pacific crescent. Although the technological and financial requirements will be familiar, the institutional and cultural settings are vastly different. Moreover, rather than pursuing exploration solely for the purpose of export, the dynamic and expanding economies of the “Tigers of Asia” are becoming increasingly reliant on oil and gas for domestic consumption.2 This reliance is illustrated by Indonesia’s forecasts that it will need to import crude oil and petroleum products by the end of the century.3 Overall, the outlook is for continually increasing activity, not only among traditional producing countries, but also among newcomers such as Cambodia, Myanmar, and Vietnam.4

* The term ‘elephant’ refers to a discovery with the potential to produce more than 100 million barrels of oil which is sometimes referred to as a “giant” field. DANIEL YERGIN, THE PRIZE 499 (1991).

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2. This is a reference to the nine economies of Taiwan, South Korea, Singapore, Hong Kong, Thailand, Malaysia, Indonesia, Philippines, and the People’s Republic of China whose collective annual increase in GDP has averaged more than 7% for the last five years. See INTERNATIONAL MONETARY FUND, INTERNATIONAL FINANCIAL STATISTICS YEARBOOK 161 (1991).


Southeast Asian countries are eager to guarantee the security of foreign investment. Most countries have enacted legislation in order to give assurances of safety from political risk. For example, the Philippine Supreme Court recently upheld the constitutionality of the Foreign Investments Act which liberalized the entry of foreign investment into that country.

While other petroleum regions of the world are either drawing upon established production bases or seeking to increase incremental production through enhanced recovery methods, Asia poses opportunities for new exploration as it still possesses large unexplored on-shore and marine sedimentary basins with the potential for major discoveries. The extent of this region is shown in Figure 1. Furthermore, exploration of these areas is moving ahead with the development of new business relationships between Asian governments and various outsiders. Previously, all on-shore operations in the People's Republic of China were the sole responsibility of the China National Petroleum Corp. In 1990, China granted the first on-shore contract to a joint venture headed by Fletcher Challenge Petroleum. The Republic of Vietnam has recently begun to encourage foreign led exploration offshore near the Mekong Delta in an area that has always been seen as holding high potential for prospectivity. Moreover, in 1989, after ten years of negotiations, Australia and Indonesia finally reached an agreement on the terms for the exploration and development of the Timor Gap area. The figures on the Association of Southeast Asian Nations (ASEAN) and non-ASEAN nations for drilling activities and petroleum production are depicted in Tables 1 and 5.


8. Contracts were signed between China National Oil Development and Santa Fe Energy Resources of China, Inc. and Petrocorp Exploration China Limited and Nomeco China Inc. for petroleum exploration, development and production in the Dongting Basin of Hunan Province.

9. Khin, supra note 4, at 125.

10. Henry Burnester, The Timor Gap Treaty, 1990 ANN. CONF. AUSTL. MINING & PETROLEUM LAW ASSN., Paper No. 2, at 1. Under the treaty, the Timor Gap area has been divided into three zones covering 61,000 square kilometers of a potentially hydrocarbon rich area. Id. In Zone A, Australia and Indonesia will share equally in the proceeds from petroleum production. In Zone B, closest to Australia, gross-resource rent tax on oil production will be shared between Australia and Indonesia at the ratio of 90%/10% in favor of Australia. In Zone C, closest to Indonesia, an equivalent arrangement will apply. The treaty is valid for 40 years, with a possible 20 year extension. Id. at 2.
respective. At latest count, there were approximately forty-five foreign oil companies operating within the region.\textsuperscript{11}

Even in light of these encouraging factors, independent oil companies must confront a variety of issues when contemplating whether to become active in the Asia-Pacific region. The development of synergistic relationships with similarly situated regional exploration companies could help participants go beyond the conventional joint venture approach by combining strength-with-strength in what management gurus term strategic alliances.\textsuperscript{12}

II. KNOWING THE TERRITORY

Before advancing the virtues of a strategic alliance between North American companies and experienced regional explorers, it would be helpful to consider some of the pitfalls of Asian exploration which await the uninitiated. As the professor says in the \textit{Music Man}, “you’ve gotta know the territory.”

A. Geologic Data

As a general matter, geologic data has been regarded as proprietary to the national oil company or government energy ministry of the host country. This view has prevailed regardless of the fact that information was obtained through the efforts and expenditures of private operations. Perhaps this attitude is explained, in part, by the fact that under the typical production sharing or service contract, the foreign oil company is basically performing a service for the host government.\textsuperscript{13} As the provider of a service, the foreign oil company does not acquire any ownership interest in the resource. The production share taken by the private operator constitutes payment for contract performance.

Thus, private operators in many countries cannot legitimately trade in geologic data because all requests for this information must be channeled through the government. For example, Malaysia continues to regard geologic information to be in the nature of a state security secret. However, recently in Indonesia, Pertamina began to permit geologic data

\textsuperscript{11} Khin, \textit{supra} note 4, at 115.

\textsuperscript{12} For a general discussion of the increasing importance of strategic alliances in international business, see F. CONTRACTOR \& PETER LORANGE, \textit{COOPERATIVE STRATEGIES IN INTERNATIONAL BUSINESS} (1988); KATHRYN R. HARRIGAN, \textit{STRATEGIES FOR JOINT VENTURES} (1985).

\textsuperscript{13} See Alfred J. Boulos, \textit{Negotiating an E&P Agreement: Are There Mutuality of Interests with Host Governments from an Oil Company Perspective?}, \textit{8 OIL \& GAS L. \& TAX’N REV.} 414, 415 (1990).
to be purchased by parties other than those who hold production sharing contracts for the area of interest.\textsuperscript{14} It is not uncommon in some Asian countries, as part of the concession contract process, to require the private operator to pay a data acquisition fee as part of the stipulated financial contribution.

B. Government Participation

Since the 1960s, participation by host governments in all phases of exploration and production has been the hallmark of Asian exploration. Typically, government participation has taken the form of either production sharing or service contracts between the government’s national oil company and private operators.\textsuperscript{15} Such arrangements were initially shunned by the multinationals.\textsuperscript{16} This shunning opened the opportunity for independents to compete for exploration agreements and to cooperate with national oil companies. The general pattern has been for smaller companies to enter through farm-ins in search of a market position while the multinationals competed strategically for acreage, projects, and prime contracts.

Another form of government participation includes the ministry or national oil company as a joint venture participant. Generally speaking, the government’s interest is carried by the other participants during the exploration phase. Upon completion of a commercial discovery, the government can then elect to fund its portion of development costs and take up full rights to its share of production.\textsuperscript{17} Chinese contracts go so far as to provide that the state corporation may, at an appropriate time after commencement of commercial production, take over all of the production operations.\textsuperscript{18}

C. Philosophy of Production Sharing Contracts

Because government participation typically takes the form of production sharing contracts, an understanding of this concept is a necessary prerequisite. The agreement considered the standard by many is the production sharing contract administered by Pertamina, the Indonesian

\textsuperscript{15} See generally Ernest E. Smith, Typical World Petroleum Arrangements, 1990 ROCKY MTN. MIN. LAW Found. Paper No. 9.
\textsuperscript{16} Sumners, supra note 1, at 357.
The national oil company. The Indonesian approach is often summarized simply as an 85%/15% split between Pertamina and the contractor, respectively. However, the contract is neither as simple nor as onerous as the figures might indicate.

The commerciality requirement is an important feature of the Pertamina contract. The requirement essentially places the burden of proof regarding the existence of commercial quantities upon the contractor in order for the contractor to receive permission to develop a given field. There are no royalties paid under the Indonesian regime. However, many other countries that have tracked the fiscal terms of the Indonesian model have adopted royalties that typically range from about 8 to 12.5%.

One of the most important features of a production sharing contract is the cost recovery mechanism which allows the contractor to recoup the costs of exploration, development, and operations out of gross revenue. The typical production sharing contract does not limit the level of expenditures the contractor may claim for cost recovery. The only requirement is that tangible costs must be depreciated. However, early Pertamina contracts from the late 1960s to 1978 did have an annual limit of 40% on cost recovery. The contracts of most of the Asian countries have a cost recovery limit of 40 to 60% of annual gross revenues; and, like Pertamina's, they allow unrecouped costs to be carried forward and recovered in succeeding years.

The production revenues remaining after cost recovery are subjected to a split as "profit oil" before tax. For example, under the Pertamina approach the split is calculated as follows:

<table>
<thead>
<tr>
<th></th>
<th>Oil</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pertamina</td>
<td>65.9%</td>
<td>68%</td>
</tr>
<tr>
<td>Contractor</td>
<td>34.1%</td>
<td>32%</td>
</tr>
</tbody>
</table>

In an effort to stimulate exploration, the after-tax profit oil split for contracts signed after 1988 may range between 75%/25% and 90%/10% in


20. See BARROWS, supra note 17, at 6.

favor of the government. The exact ratio depends upon certain conditions such as tertiary recovery, production levels, frontier areas, etc. The split for new contracts in conventional areas is 80%/20% in favor of Pertamina on an after-tax basis.

Many contracts worldwide have instituted a sliding scale for profit oil splits, as well as the limit on cost recovery. Recently, Pertamina proposed a sliding scale profit oil split for new frontier contract areas. The after-tax split is on the order of:

<table>
<thead>
<tr>
<th>Pertamina : Contractor</th>
<th>Production Rates (bbl/da)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80% : 20%</td>
<td>Up to 50,000</td>
</tr>
<tr>
<td>85% : 15%</td>
<td>50,000-150,000</td>
</tr>
<tr>
<td>90% : 10%</td>
<td>Over 150,00022</td>
</tr>
</tbody>
</table>

D. Domestic Purchase Requirements and Prices

A cornerstone of the production sharing concept has been recognition that the contractor's share of production can be exported and proceeds of the sale retained abroad.23 However, some Asian agreements make provisions for "prohibited destinations" as notified by the host government.

Under the terms of some Asian production sharing agreements, the private operator is required to sell all or a portion of production to state-owned enterprises. For example, in Thailand, first priority for the purchase of crude is granted to the Thai Government.24 In addition, the price paid is to reflect $.15 U.S. per barrel discount for oil of comparable API quality. Indonesia has an official government selling price for oil marketed domestically. This is a subsidized price that is used for cost recovery, tax calculations, and transactions between the contractor and the government. However, these subsidies are being reduced through a process of market deregulation.

E. Bonuses

Two kinds of bonuses are encountered in Asian production sharing agreements. It is not unusual for signature bonuses to be paid both at finalization of negotiations and upon contract execution. Depending upon the market and the attitude of the host government, these bonuses

22. See BARROWS, supra note 17, at 13.
24. BARROWS, supra note 17, at 260.
can range from one to ten million dollars. Additionally, bonuses are paid when production from a given contract area reaches specified thresholds that are generally stated in 1,000 barrel multiples. Payments can be triggered by so-called "first commercial production" starting at several million dollars and becoming larger as production plateaus exceed 50,000 to 100,000 barrels per day.

F. Drilling Obligations

A standard feature, if not the driving force, of production sharing contracts is the obligation for the contractor to spend a stipulated minimum amount on seismic acquisition and exploration drilling under an approved work program. This obligation is usually stated in terms of so many kilometers of seismic and a set number of exploratory wells, which are estimated to amount to a total expenditure of "X" millions of dollars.

Any company intending to undertake exploration under these petroleum regimes must bear in mind that the host governments essentially consider these arrangements to be foreign investment agreements. As such, they are intended to operate to bring foreign exchange into their economies, which explains the rationale for host governments to speak in terms of the "investment value" of the production sharing contracts signed with foreign oil companies.

Another fairly standard feature is that all equipment purchased by the contractor for purposes of carrying out the work program will, at some point in time, become the property of the government oil company. Title to the equipment will either transfer when it is landed in the country or, in any event, after the contractor has been permitted to recover the cost under the production sharing agreement. Many foreign oil companies now arrange to lease most of the equipment that is used on Asian projects.

G. Ringed-Fenced Expenditures

Unlike the U.S. tax code, most Asian petroleum tax regimes do not permit cost recovery deductions for drilling and development expenses to be applied outside of the individual contract area where the expenditures are made. The inability to consolidate costs can be a disincentive for

25. BLINN ET AL., supra note 21, at 166.
explorers to take up multiple concessions since dry hole costs cannot be transferred to contract areas where efforts have been successful.

H. Management and Training Obligations

The transfer of operational skills and technology figures prominently among the benefits that host governments obtain from production sharing or service contracts. Even when the technology being applied is not proprietary to the contractor, there is often a duty for the contractor to undertake reasonable efforts to obtain permission for the transfer of processes that are restricted by patent or license agreements.27

Preferences for use of local labor, goods, and services are also stated as contract conditions. Usually, employment obligations are conditional upon hiring competent and qualified or trainable nationals. An experienced operator will stipulate that the contract also provide local services, such as engineering, must be competitive in terms of technical proficiency, cost, and timing of delivery.

I. Dual Language Agreements

It is not unusual for the production sharing agreement to be written in both English and the language of the host government. However, it is generally understood and accepted, that as an international investment document, English will either control interpretation of the contract, or at least stand on equal footing with the official language of the host country.28 In Indonesia, English is the exclusive language of the production sharing contract. This is in contrast to the situation in Thailand where the English version has no standing. There is a strong preference for service contracts and administrative documents to be dual language. Pertamina goes even further and directs contractors to expressly provide that the Indonesian language will control the interpretation of those operational and commercial obligations which are to be performed within the country.

J. Dispute Resolution

The substantive law for interpretation of the contract as well as the forum for resolving contractual disputes are perennial topics among legal

27. See MICHAEL BLACKENEY, LEGAL ASPECTS OF THE TRANSFER OF TECHNOLOGY TO DEVELOPING COUNTRIES 89 (1989).
28. See BARROWS, supra note 17, at 1-2.
advisors to the international oil industry. The generally accepted rule is that the national law of the host country will apply to the production sharing contract, joint venture operating agreement, and service contracts. In all practicality, disagreements with the host government or national oil company are best resolved through conciliation rather than litigation or arbitration. There are two key objectives to be accomplished in this regard.

The first task is for the negotiator to strike a balance between the legal precedents of the host country and the application of legal principles which are generally observed in the international petroleum industry. This is accomplished by providing in the contract, that for questions of interpretation where there is no applicable local law, the law generally prevailing in the international petroleum industry will be observed.

The second objective is to secure a neutral forum for dispute resolution. Currently, ninety-four nations have ratified the International Convention on the Settlement of Investment Disputes employing the World Bank’s International Center for the Settlement of Investment Disputes as the adjudicative tribunal. Despite this fact, it appears that most Asian countries still prefer to have the arbitration of disputes conducted according to the International Chamber of Commerce Rules of Arbitration. Other countries, such as Indonesia, have developed their own codes of arbitration and require that this procedure be used exclusively for contracts performed in those countries.

A final attempt is usually made to deal with the possible retroactive application of new legislation. Contract terms often provide for the parties to engage in consultation for potential revisions and adjustments in the relevant provisions of the contract in order to permit the private operator to maintain the economic benefits intended by the agreement.

K. Foreign Exchange Limits on Local Partners

The scarcity of U.S. dollars in some Asian economies has recently made it difficult for local participants to meet their funding obligations

33. See INDONESIAN NATIONAL BOARD OF ARBITRATION, *RULES OF PROCEDURE* (commonly known as “Code BANI”).
under approved drilling programs. The delay or outright failure to meet cash call obligations triggers the default provisions common to joint venture operating agreements. In the event that strict performance is demanded, the forced transfer of the defaulting participant’s proportionate interest might have serious legal and political ramifications. However, legally, most courts are very reluctant to sanction the forfeiture of the entire interest for failure to meet a single cash call, particularly if there are events that are arguably beyond the control of the defaulting party. Also, business, political, and cultural relations with the host government and local supporters can be injured by the termination of participation rights held by domestic companies.

Joint venture agreements need to provide some contingencies for such occasions. Options include the impoundment of local funds in a dedicated joint venture account, or provisions for payment of some expenses in a currency other than U.S. dollars. For example, equipment being fabricated in Korea or Japan and support vessel services being furnished from Singapore could be paid for in those currencies.

L. Equipment and Infrastructure

Extended supply and communications networks have proven to be a source of frustration to many North American firms who have ventured into the Asia-Pacific region. While the long term availability of supplies and equipment is usually not a real factor, there are often delays beyond those usually encountered for comparable programs in Canada and the United States. Longer lead times, often one year, are required for budgeting and scheduling. When a supplier tells you that it will take six months to have the right valve—believe it! It is not unusual for the development of a discovery to require the construction of gathering systems, storage tanks, terminals, and even ports. Expect to have to build these facilities from grass roots, often under appalling conditions. Obviously, this kind of expense can take a terrible toll on discounted cash-flow rates of return.

34. See Blinn et al., supra note 21, at 200-01.
III. DEVELOPING STRATEGIC ALLIANCES

A. Joint Ventures

Strategic alliances are well accepted for formulating and implementing international business strategies. These cooperative arrangements between firms can be structured in a variety of ways. The joint venture has always been a unique form of business organization for bringing together capital and technical talent. Oil companies have traditionally participated in joint ventures for the purpose of reducing their exposure from the financial risk associated with unsuccessful exploration.

The joint venture is particularly suited to petroleum development activities for several reasons. Petroleum exploration and development involve substantial sums of capital, possess a high risk factor, are inevitably of a long term nature, and are often one-of-a-kind associations. Consequently, the structure of any agreement must be tailored to have the flexibility to adapt to market forces peculiar to the petroleum industry. In addition, because each project will have its own complex technical, financial, taxation, legal, social, and political considerations, the parties must be free to negotiate to take these factors into account. For these and other reasons, traditional forms of business organizations are not particularly well suited to deal with matters encountered by modern, large scale mining or petroleum projects when compared with joint ventures.

According to Michael Porter's "5 Forces Model," joint ventures proliferate in response to the following:

1. The relative 'strength' of buyers or customers.
2. The relative 'strength' of sellers of suppliers of goods or labor.
3. Relative ease of market entry by potential new competitors.
4. The potential availability of 'substitutes'.
5. Rivalry between competing firms.

In the 1990s, joint venture relationships are increasingly formed in response to a variety of influences, principally those which stress size, financial depth, and control of technology. The benefits of a strategic alliance are particularly suited to petroleum development activities. Hence, joint ventures become an attractive option for companies seeking to enter the oil and gas market.

36. The terms of strategic alliances are grouped into eight general categories: acquisitions, equity participation, joint venture, project-based consortium, joint development, distributor, agent, and franchise. Peter Lorange & Johan Roos, Analytical Steps in the Formation of Strategic Alliances, 4 J. ORGANIZATIONAL CHANGE MGMT. 60, 62 (1991).
37. See Derman, supra note 35.
38. MICHAEL E. PORTER, COMPETITIVE STRATEGY: TECHNIQUES FOR ANALYZING INDUSTRIES AND COMPETITORS 4, fig. 1.1 (1980).
alliance result from its scale, scope, and complementarity.40 These strategic forces are particularly relevant for Asia-Pacific petroleum exploration.

A contemporary joint venture is essentially an alliance of two or more firms. Therefore, it is critical that the participants enter into this form of collaboration with compatible goals and objectives. This involves not only mutual confidence between the parties, but an “asymmetry” between the positions of the participants so that a stronger more viable entity is formed when they join together.41

Looking at this topic in the context of Asian exploration, the optimum match-up would be between firms that have a strong land position and understanding of regional geology and political conditions on the one hand, and North American independents that are adequately capitalized and have experienced personnel skilled in production activities on the other hand. Other than financing, which is never to be underestimated, perhaps the greatest experiential contribution a North American company new to Asia can make is in the area of field operations and oversight of development activities. This is particularly true if the company has gained experience in offshore operations in Texas, Louisiana, or the North Sea. Such an alliance would emphasize the complimentary nature of the upstream strength of the experienced Asian explorer and the downstream strength of the U.S. or Canadian production company.42

B. The Growing Impact of Privatization

Notwithstanding what has traditionally been a high degree of government involvement in the petroleum industry due both to its strategic economic importance and the manifestation of national sovereignty,

40. Lorange & Roos, supra note 36, at 66.
41. Strategic alliances are successful where strengths are combined according to “value chains” that combine one firm’s upstream strength with another company’s downstream strength resulting in complementarity; combinations of upstream strength in research or exploration results in scale advantages for cost savings or investment sharing; combinations which stress downstream strength are oriented at advantages from increased scope. Id. at 65. For a description of the concept of value chains, see MICHAEL E. PORTER, COMPETITION IN GLOBAL INDUSTRIES 19-24 (1986).
42. For my company, Indonesia offers interesting possibilities as some of our concessions are adjacent to large producing fields. However, it is our involvement in the high risk exploration, but potentially high pay-off area of Asia, which is attracting considerable attention from industry experts. Fletcher Challenge Petroleum Ltd. now has concessions in the Philippines, Indonesia, Thailand, China, and possibly soon in offshore Vietnam. It has taken our company several years to become a recognized name in Asian exploration.
countries around the world (including Asia) are moving toward economic liberalization and privatization of this industry. Costs of financing public debt has made it prudent, if not essential public policy, to transfer many public enterprises to the private sector.

The Asian Tigers, in contrast to most Latin American countries and Eastern Europe, already possess formidable economies. But despite, or perhaps because of this, many of them have extensive privatization programs. Malaysia and Singapore have already floated a number of enterprises on local stock exchanges with happy results for investors. Taiwan has recently passed privatization legislation which is expected to give impetus to twenty-one companies which are listed for divestment, while the Philippines appear to be moving forward at last with the sale of some of its more important assets after prolonged legal problems. While the coup in Thailand appears to have interrupted progress there, the stock market revival may reignite divestment plans in Korea. Additionally, a major program of privatization was launched in Pakistan with the goal of selling 115 governmentally owned industrial companies and four banks before June 1992.

In the field of oil and gas exploration and production, there have been some notable sales. In Australia, the state of Victoria is finalizing plans for the sale of the E&P group that is part of Gas and Fuel Corporation N.L. Indonesia has made a halting start and is now in the process of market deregulation and decentralization, with fuel prices approaching market levels. Funding cutbacks for the planned refinery complex EXOR 3, in Indonesia, could provide more momentum towards privatization of all or part of the oil industry there.

Increasingly, governments are deciding that as a matter of policy, the state should no longer be involved directly in the production of goods or the provision of services. This change in policy will create even more opportunity for the creation of strategic alliances with established independent petroleum companies for the purposes of entry into downstream processing and refining activities.

45. My own company came into being as the result of the privatization of the former state owned company Petroleum Corporation of New Zealand.
46. Indonesia, supra note 3, at 26.
47. See Derek Bamber, Just a Hint of Hesitation, PETROLEUM ECONOMIST, Feb. 1992, at 8, 9. Foreign borrowing constraints on Indonesia and other Asian governments could open the way for direct investment in refining and gas processing for the first time. See id.
IV. CONCLUSION

Before deciding to undertake an active exploration program in the Asia-Pacific region, companies should carefully assess the major business, legal, political, and cultural issues which can influence commercial development. The long term life cycle of petroleum production will mean that an independent oil company should decide that being active in Asia is central to its overall portfolio. Do not measure Asian production arrangements strictly by North American standards. First time entrants into this area have often become so dismayed that they beat a hasty retreat bypassing real opportunities.

While Asian governments still have a bit of suspicion as to the motives of western oil companies (a hangover from colonial days), they recognize they desperately need the investment and technology transfer which comes from the exploration process. Moreover, Asia is committed to economic development through private investment.

Linking up with a company already experienced will advance the process of acclimation and provide a much needed insight into operations within the region. An economically sound, well-assessed joint venture agreement between such firms is the best formula for success.

48. See Fereidun Fesharaki et al., The Asia-Pacific Petroleum Market: Critical Issues for the 1990s, 15 NAT. RESOURCES F. 140, 140-42. The authors forecast regional production to peak at 6.6 million bbl/day in 1995, declining to 6.1 million bbl/day by 2000, while excess regional refining capacity will increase from 1.1 million bbl/day in 1990, to 2 million bbl/day in 2000. Id.
### Table 1

**Asia Pacific Drilling Activities**

<table>
<thead>
<tr>
<th>Countries</th>
<th>1990 (Actual)</th>
<th>1991 (Forecast)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exploration Wells</td>
<td>Development Wells</td>
</tr>
<tr>
<td>Brunei</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Indonesia</td>
<td>128</td>
<td>608</td>
</tr>
<tr>
<td>Malaysia</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>Philippines</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Thailand</td>
<td>19</td>
<td>61</td>
</tr>
<tr>
<td>NON ASEAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>India</td>
<td>195</td>
<td>360</td>
</tr>
<tr>
<td>Japan</td>
<td>16</td>
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<td>Myanmar</td>
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<td>Pakistan</td>
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<tr>
<td>S. Korea</td>
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<td>3</td>
</tr>
<tr>
<td>Taiwan</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Vietnam</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>Grand Total</td>
<td>466</td>
<td>1175</td>
</tr>
</tbody>
</table>

Note: It is estimated that 1735 wells to be drilled in 1991, i.e. 5.5% increase over 1990 actual wells drilled

* China excluded

<table>
<thead>
<tr>
<th>Countries</th>
<th>1990 (Actual)</th>
<th>1991 (Estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Oil (Million bl)</td>
<td>Gas (Billion cu.ft.)</td>
</tr>
<tr>
<td>ASEAAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brunei</td>
<td>49.0</td>
<td>334.4</td>
</tr>
<tr>
<td>Indonesia</td>
<td>453.0</td>
<td>766.5</td>
</tr>
<tr>
<td>Malaysia</td>
<td>215.3</td>
<td>653.0</td>
</tr>
<tr>
<td>Philippines</td>
<td>1.8</td>
<td>—</td>
</tr>
<tr>
<td>Thailand</td>
<td>8.3</td>
<td>222.5</td>
</tr>
<tr>
<td>NON ASEAAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>0.1</td>
<td>168.0</td>
</tr>
<tr>
<td>India</td>
<td>243.0</td>
<td>602.2</td>
</tr>
<tr>
<td>Japan</td>
<td>2.8</td>
<td>43.1</td>
</tr>
<tr>
<td>Myanmar</td>
<td>5.4</td>
<td>36.5</td>
</tr>
<tr>
<td>Pakistan</td>
<td>18.9</td>
<td>492.3</td>
</tr>
<tr>
<td>Taiwan</td>
<td>—</td>
<td>47.5</td>
</tr>
<tr>
<td>Vietnam</td>
<td>20.0</td>
<td>16.4</td>
</tr>
<tr>
<td>Grand Total</td>
<td>1017.6</td>
<td>3382.4</td>
</tr>
</tbody>
</table>

Note: It is estimated that in 1991 an increase of 5.2% of oil; 9.3% of gas and 3.1% of condensate respectively over 1990 production.

* China excluded

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