CHAPTER - V
HISTORY OF PRIVATE PARTICIPATION IN OIL EXPLORATION IN INDIA

Introduction:

In the earlier chapter, we have examined the probable scenarios with regard to oil and the implications on the Indian economy. In this chapter, we will analyze efforts for private participation in oil exploration and production in India so as to increase domestic production, thus reducing our dependence on import of oil.

The Indian policy of inviting private sector participation has evolved over the years as shown in the figure below:

**Figure 5.1:** Different regimes in the matter of mining lease/ licenses for exploration/ production of oil and gas


We will review, in the following section, the status of the New Exploration and Licensing Policy (NELP) in more detail and also discuss the concept of the Open Acreage (OALP) and a transition to a revenue sharing mechanism that is being touted as a panacea for all ills.
Present status of NELP:

Under NELP, which became operational in February 1999, acreages were offered to the participating companies through the process of open global competitive bidding. The first round of offer of blocks was in the year 1999 and the latest (ninth round) in 2010. The Government of India has so far completed nine rounds of offer of acreages under NELP wherein 360 exploration blocks have been offered and 249 blocks have been awarded till 31.03.2012. As per DGH, Oil and Oil-Equivalent Gas (O+OEG) in place reserve accretion under NELP is approximately 735.7 million metric tonnes. The crude oil production has remained in the range 32 to 38 MMT during year 2005-2013. Natural gas production has increased from 32.202 BCM in 2005-06 to 40.679 BCM in 2012-13. (Hydrocarbon Exploration and Production Activities Report 2012-13, Directorate General of Hydrocarbons, 2013)

Table 5.1: Status of Blocks under NELP

<table>
<thead>
<tr>
<th>Round</th>
<th>Offered</th>
<th>Deep Water</th>
<th>Shallow Water</th>
<th>Onland</th>
<th>Total</th>
<th>Relinquished</th>
<th>Operational</th>
</tr>
</thead>
<tbody>
<tr>
<td>NELP-I</td>
<td>48</td>
<td>7</td>
<td>16</td>
<td>1</td>
<td>24</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>NELP-II</td>
<td>25</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>23</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>NELP-III</td>
<td>27</td>
<td>9</td>
<td>6</td>
<td>8</td>
<td>23</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>NELP-IV</td>
<td>24</td>
<td>10</td>
<td>-</td>
<td>10</td>
<td>20</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>NELP-V</td>
<td>20</td>
<td>6</td>
<td>12</td>
<td>20</td>
<td>52</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>NELP-VI</td>
<td>55</td>
<td>21</td>
<td>6</td>
<td>25</td>
<td>52</td>
<td>-</td>
<td>52</td>
</tr>
<tr>
<td>NELP-VII</td>
<td>57</td>
<td>11</td>
<td>7</td>
<td>23</td>
<td>41</td>
<td>-</td>
<td>41</td>
</tr>
<tr>
<td>NELP-VIII</td>
<td>70</td>
<td>8</td>
<td>11</td>
<td>13</td>
<td>32</td>
<td>-</td>
<td>32</td>
</tr>
<tr>
<td>NELP-IX</td>
<td>34</td>
<td>-</td>
<td>2</td>
<td>12</td>
<td>14*</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>TOTAL</td>
<td>360</td>
<td>80</td>
<td>58</td>
<td>111</td>
<td>249</td>
<td>53</td>
<td>196</td>
</tr>
</tbody>
</table>


Despite the progress, there are some reasons for concern as only handfuls are actually producing oil or gas. Another area of concern has been that well-explored basinal area has increased only marginally from 16 percent to 22 percent of total area in the last 15 years. Additionally, there is declining interest in NELP auction rounds – in NELP round IX, only 14 out of the 34 blocks on offer were awarded. Participation by international players remains low, with only 12 percent of the total acreage and about 7 percent of total contracts awarded to foreign players till date.

According to BCG “In addition to low and declining interest in bidding, the current regime has come under criticism on several fronts. Operating companies are complaining of long delays (in clearances and operational decision making), and the resultant cost and time...
overruns. From the government’s point of view, as explained earlier, the current structure has resulted in a huge administrative burden of conducting cost audits and budget approvals due to the fact that government’s take is dependent on cost recovery claimed by operating companies. The source of concern has been disputes arising between the governments and operating companies on matters of cost recovery, especially for big investments which ultimately impact the profit pie to be split. The key drivers of the dispute are information asymmetry between the two parties (with the operator having more technical information about the field), and the potentially misaligned incentives to manipulate the profit pie to be split. These disputes need to be managed and addressed with adequate technical capacity and capability in the government, which is also constrained with limited technical staff in the Directorate General of Hydrocarbons (DGH).” (BCG, Review of upstream commercial structures and insights from global practices, The Boston Consulting Group, September 2012)

Figure 5.2: Pre-NELP & NELP exploration blocks under operation by NOC’s &Pvt./JV companies

Present status of Coal Bed Methane (CBM) Blocks:

India, having the fourth largest proven coal reserves in the world holds significant prospects for exploration and exploitation of CBM. The prognosticated CBM resources in the country are about 92 TCF (2608 BCM). In order to harness CBM potential in the country, the Government of India formulated CBM policy in 1997 wherein CBM being Natural Gas is explored and exploited under the provisions of OIL Fields (Regulation & Development) Act 1948 (ORD Act 1948) and Petroleum & Natural Gas Rules 1959 (P&NG Rules 1959) administered by Ministry of Petroleum & Natural Gas (MOP&NG).

According to the Directorate General of Hydro Carbons, till date, four rounds of CBM bidding rounds have been implemented by MOP&NG under the CBM policy resulting in award of 33 CBM blocks which covers 17,200 sq.km out of the total available coal bearing areas for CBM exploration of 26,000 sq. km. Exploration under CBM policy has been undertaken by national and international companies. Total prognosticated CBM resource for awarded 33 CBM blocks is about 63.85 trillion cubic feet (tcf), of which, so far, 9.9 tcf has been established as Gas in Place (GIP). (Hydrocarbon Exploration and Production Activities Report 2012-13, Directorate General of Hydrocarbons, 2013)

Commercial CBM production has started since July 2007, which contributes about 0.25 Million standard cubic metre per day (mmscmd) of CBM productions in the country. According to reports, seven more CBM blocks are expected to start commercial production in near future. The total CBM production is expected to be around 4 mmscmd by end of 12th plan as per XII plan document.

According to a report in The Hindu, In December 2013, The Union Cabinet gave its approval to allow Coal India Ltd. (CIL) to carry out exploration of coal bed methane (CBM) gas in its existing mines, a move that will unlock nearly 100 million tonnes of medium grade coking coal and about one trillion cubic feet (tcf) of gas. (The Hindu, December 20, 2013)

Why domestic policy is important?

As briefly stated in our introductory chapter, the domestic oil and gas production of India has had an extremely poor record over the last decade, except for the increase in crude production in the last 3 years from the Cairn owned oil fields at Rajasthan (the only major event in this area) and the couple of years surge in gas production from the KG-D6 field (which plummeted again due to technical reasons). The accretion of reserves under NELP rounds so far (9 of them) has been 735 Million Tons (MMT) of Oil Equivalent Oil and
Gas. While our fiscal terms are well appreciated and benchmarked with international best practices there are still major areas of concern as per the opinions of the experts in our workshops. According to them:

- Explored acreage has not materially increased
- Lack of adequate data provided to bidders
- There is declining interest in the NELP rounds
- Low level of participation by international players in the rounds (only 12% of total acreage going to them)
- Significantly escalated level of disputes and lead time in decision making of critical items at the management committee levels
- The concept of “market price” of gas to the producers enshrined in the PSCs have been significantly eroded by government interference in this area
- Denial of tax holiday to gas producers
- Significant issues in ensuring environmental clearances and also approvals from State Governments (particularly with respect to sharing revenues with them).

While the concessions for Coal Bed Methane have been a relative success, according to experts, there is still significant policy issues related to the development, such as overlaps with Coal India Limited, market price of the gas, and access to markets from the remote areas (in areas where coal is the dominant fuel).

There is also significant ambiguity and lack of clear perspective in developing the policy framework for developing the exploration and development of Shale Gas in India. The government initiatives have been hanging fire for some time, except that now it has been clarified that the National Oil Companies (ONGC and OIL) can carry out explorations for shale resources in the blocks they currently own.

The domestic oil & gas industry and increase in production from indigenous sources is the cornerstone of any strategy for energy security. Without a surge in domestic energy production the idea of energy security for a country like India would remain a distant dream, and be subject to how successfully it can manage its external environment and secure international suppliers. The success of US in transforming itself from an energy import dependent economy to “energy independence” driven by its successful exploitation shale resources is a case in point.
In view of mounting criticism on the PSC framework and the associated holdup in decision making, the Government of India has made efforts to reform the policy framework of the Production Sharing Contracts (PSCs). The following section summarizes the key suggested recommendations that emerged out of two committees which were specially constituted:

- The Kelkar Committee (headed by a key policy maker and a former Finance Secretary)
- The Ranagarajan Committee (a former governor of the RBI)

**Summary of recommendations by Vijay Kelkar Committee:**

Vijay Kelkar Panel recommended continuing with the present Production Sharing Contract (PSC) framework for oil and gas sector. This PSC framework allows cost recovery by Exploration and Production (E&P) companies before they pay the governments its share.

- According to Vijay Kelkar Panel, if option of PSC is opted then it would lead to an extra 7 billion barrel of oil equivalent of production valued at $700 billion in comparison with the revenue-sharing regime.
- The committee felt that Exploration and Production contracts in India have evolved to offer a good risk-reward balance under the PSC framework.
- It felt that in the current PSC system, the interests of the government and contractors are served equally.
- It has not supported the arguments against the current framework of the PSC. The Committee felt that it is hardly possible that investor will go: (i) to gold plate, or (ii) do willful under-production. (By this the committee meant that investors themselves will not willingly under-produce)
- It was of the view that under PSC as the returns of the investor increases, so does the return to the government.

It has re-emphasized the objective and rationale of the New Exploration Licensing Policy (NELP) adopted in 1999. (NELP is favored by all of the E&P industries). (Government of India, *Report of the Committee on Roadmap for Reduction of Import Dependency in Hydrocarbon Sector by 2030* (Vijay Kelkar Committee)

The recommendations of the Kelkar Committee runs counter to the recommendations that emerged out the Rangarajan Committee that deliberated on the merits and demerits of PSC versus a simpler Revenue Sharing model, and seemed to have recommended the Revenue
Sharing model to mitigate the so called “policy and decision making paralysis” with respect to PSCs. (\textit{The Hindu}, January 8, 2014; \textit{Times of India}, January 9, 2014) We summarize the recommendations of the Rangarajan Committee in the following section:

\textbf{Rangarajan Committee salient recommendations:}

- Replacement of cost recovery with total revenue sharing determined by bids. The committee cited past disputes over contractor costs as a reason to change. Under the recommendation a bidder would offer different revenue shares for different levels of production and price.

- Extension of a tax holiday for drilling in offshore blocks with water depths exceeding 1,500 m to 10 years from 7 years.

- Extending the exploration term for frontier licenses in more than 400 m of water and licenses in ultra-deep water (more than 1,500 m) to 10 years from 8 years.

- Establishing government committees to address policy disputes and delays in exploration.

- Making lists of blocks available to the Comptroller and Auditor General from which to select targets for audits. The focus would be on blocks in exploration and development phases, when costs are higher. CAG audits have triggered disputes over costs for recovery under current PSCs.

- Determining natural gas prices under PSCs on the basis of international proxies. The Indian PSC calls for “arm’s-length” pricing, but lack of development of the domestic gas market makes that difficult. The recommendation is for pricing based on an average of producer netbacks for gas imported by India and netback values derived from prices at hubs in the US, UK, and Japan. (Government of India, (2012), \textit{Report of the Committee on the Production Sharing Contract Mechanism in Petroleum Industry})

The recommendations of two committees, diametrically opposite to each other has opened up a debate on what is the optimal policy framework for India that would ensure long term growth of the domestic E&P industry that would not be subject to bouts of policy paralysis. Let us see how the salient recommendations of the committees compare with each other:

Differences between Vijay Kelkar & Rangarajan Committee Panel reports
### Table 5.2: Comparison of the recommendations of the two committees

<table>
<thead>
<tr>
<th>Key Issue</th>
<th>Rangarajan Committee</th>
<th>Vijay Kelkar Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal Aspects</td>
<td>Change production sharing regime with a simpler revenue sharing regime. The government should get profit from the day one instead of getting share after the company has collected its revenue.</td>
<td>No need to change the existing production sharing regime. The contractor should recover all expenses before sharing profit with the government as per existing framework.</td>
</tr>
<tr>
<td>Cost Recovery</td>
<td>The cost-recovery is a disincentive to the contractor to minimize project cost. The cost recovery is at the root of the problems experienced in current regime.</td>
<td>There is little incentive for the contractor to “gold-plate” or “wilful underproduction”. Interests of the government and the contractors are aligned in the cost recovery regime.</td>
</tr>
<tr>
<td>CAG &amp; Audit</td>
<td>Controversies over CAG audit would no longer arise under revenue sharing model. Concurrent audit for contracts beyond a high financial threshold</td>
<td>CAG scrutiny should not include performance or efficiency auditing. The government may ask for forensic or investigative audit if irregularities are reported.</td>
</tr>
<tr>
<td>Tax Holiday</td>
<td>Extend tax holiday from seven to ten years. Tax exemption should be available for both oil &amp; gas</td>
<td>IT holiday should be extended to all forms of hydrocarbons (i.e. cover gas). Extend tax holiday from seven to 12 years.</td>
</tr>
<tr>
<td>Contract Administration</td>
<td>A secretary level inter-ministerial committee to suggest policy solutions. ECS should approve minor deviations from various deadlines.</td>
<td>Revenue authorities to monitor fiscal matters including profit petroleum. Oil ministry/DGH to focus on “prudential and fiduciary” oversight of operators.</td>
</tr>
</tbody>
</table>

**Sources:**


3. Also quoted in the *Hindu*, January 22, 2014 and http://www.erewise.com
**National Data Repository:**

In order to improve the perceived weakness in the quality of geological and prospectively information that is provided to the bidder, the Government is planning to set up a National Data Repository (NDR). This perhaps is a long awaited necessary enhancement to ensure that the acreage and exploration activities are more fruitful.

We also note that Government of India is envisaging on an ambitious project to set up a National Knowledge Hub (NKH) also known as National Knowledge Centre (NKC) in E&P (Exploration & Production) area in coming few years. The components of NKH/NKC will be National Data Repository, National Processing Centre, National Visualization & Application Centre, National Training Centre, and National E&P Knowledge Portal. So, NDR is the first component of NKC. The objective of the NDR is to make a repository of reliable exploration and production data for India with provisions for seamless access and on-line data management. The specific objectives of NDR are as follows: (DGH, Tender document to build, populate and operate a hydrocarbon exploration & production national data repository, December 2012)

- validate, store, maintain, and reproduce high quality and reliable geo-scientific data
- facilitate efficient data reporting, data exchange, and data trading among existing players including all geo-scientific agencies
- improve DGH’s ability to monitor and control the E&P activities and reporting
- encourage new E & P activities by providing high quality and reliable data
- strengthen overall geo-scientific activities in India
- support an open acreage system for an improved Global E & P Business environment in India
- provide quality E & P data for Processing, Interpretation and Visualization Centres at DGH
- the monopoly of ONGC would be eliminated in collecting and disseminating information
**What is Open Acreage Licensing Policy (OALP)?**

It is also discussed among the experts (for some time now) that we shift from NELP to OALP (with the NDR in place). Why there is a perceived need to shift to OALP is as follows:

- remove the barriers in getting data for evaluation
- make the investors not wait for the bidding rounds to happen

So, the major difference is that under OALP, oil and gas acreages will be available round the year instead of cyclic bidding rounds launched under New Exploration Licensing policy (NELP). The key question is: would this solve the problem of low level of exploration and production or lead to further confusion and log-jam due to the complexity of the process and the jurisdiction of such acreages? Some policy makers favour this transition, while others are against it. Only time and implementation would tell the real story.

A comparison of NELP and OALP is made in the following table:

**Table 5.3: Comparison of NELP with OALP**

<table>
<thead>
<tr>
<th>NELP</th>
<th>OALP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer of acreages for E &amp; P of hydrocarbons made from time to time by Government under different rounds</td>
<td>Acreages for E&amp;P of hydrocarbons available throughout the year</td>
</tr>
<tr>
<td>Bidders have no choice in proposing acreages for allotment by Government</td>
<td>Bidders can choose sector wise any area of their interest</td>
</tr>
<tr>
<td>Government chooses time of bidding</td>
<td>Bidders can choose their time of bidding</td>
</tr>
<tr>
<td>Data packages available only for few months before bidding round</td>
<td>Data available at NDR for viewing round the year</td>
</tr>
<tr>
<td>Online data viewing for few months only</td>
<td>Bidders can view data online round the year</td>
</tr>
<tr>
<td>Data can be purchased only during NELP round</td>
<td>Data can be purchased any time of the year</td>
</tr>
</tbody>
</table>
Framework for OALP

During a seminar at Pandit Deendayal Petroleum University the following points were discussed and highlighted towards developing a framework for OALP:

- Indian territory demarcated into grid pattern with grid size of 10 x 10 as zones (up to international boundary on land and up to EEZ offshore)
- A zone is approximately 12,100 Km (600 zones in India)
- Zones further sub-divided into sectors of size 10’ x 10’
- A sector approximately measures 340 sq.km (36 sectors in each zone)
- Sectors constitute basic unit for bidding
- A map of sedimentary basins with the PEL & PML areas would be put on website and updated periodically
- Exploration and Production companies know sectors that are available under OALP
- All the Meta Data for the sectors will be available in the public domain

Proposed modalities for OLAP

The following modalities were proposed during the discussions in the seminar

- Expression of interest (EOI) in units of sectors submitted by Exploration and Production Companies
- All sectors for which EOIs are received would be published for invitation of bids.
- Two months given for submission of bids
- Evaluation of bids and award of sectors as per BEC similar to NELP

However, the above suggestions need further examination, the key question is would the above initiatives likely to solve the problem?

Our analysis and past experience does not seem to give us the confidence that the cure for all the ills on the domestic oil and gas exploration front lies in junking the current PSC framework with cost and profit petroleum sharing based on an investment multiple to a plain vanilla flat or progressive revenue sharing model. The Open Acreage Licensing Policy does not offer an immediate augmentation of the domestic E&P activity, though we recognize the positives of such an initiative. For example, it is said, that under Open Acreage Licensing Policy, India could become a favorable destination for exploration and production as OALP enables upstream companies to bid for oil and gas blocks across the year without waiting for bidding under the NELP.
India is an under-explored country and also is not (as of now) a very geologically prospective country from the perspective of an oil & gas explorer. Despite such negative publicity in the press, there is no evidence of gold plating investments or deliberate denial of revenue share of the government. The PSC system, it must be stated here is, in fact, a globally accepted risk allocation framework and works fairly efficiently in balancing the risk–reward framework in E&P activities. There have been no major complaints from the investors or bankers on this front. We therefore believe that moving to a revenue sharing mechanism would adversely affect the economics of the exploration business in India and would create an economic disincentive for heavy exploration expenditure in the hope of finding oil or gas from these areas.

The main reason for the low level of exploration and development is perhaps the tardiness of the government in offering more and more blocks of economic size to the players and the process of providing the clearances and approvals on time from the central and the state levels. The need for fiscal stability is also important. The effort by the government to control gas prices and set the market price benchmark has created huge unwarranted controversy even though the PSC provisions are very clear in this respect. The government should perhaps facilitate the creation of national and regional markets for gas so that is controversy no longer flourishes and acts as a negative on Indian efforts to boost domestic Exploration and Production.

During the roundtable discussions Dr. Avinash Chandra, former Director General of Hydrocarbons had a very interesting and professional perspective on how to enhance India’s gas production particularly with a focus on Coal Bed Methane and Coal Mine Methane. Before concluding this chapter, the extracts of his views are produced below:

**The key points made by Dr. Avinash Chandra, former DGH in the Workshop on Energy Security:**

Already we are importing close to 45% of our gas in the form of LNG. So if we add that we will be requiring $300 to $350 billion by 2030 (in 2008 terms), that is the estimates we have as of now. The country will not able to sustain that kind of foreign exchange burden. So we have to aim at the least 50% self-sufficiency immediately for crude oil and aim for at least 80% self-sufficiency immediately for natural gas in the country,

We were earlier offering 300,000 sq. km of area every year for exploration - Round 1 to Round 5, and Round 6 onwards we started offering only 31,000 sq. km. So at one stage you are offering 7% of our basin every year for exploitation. And we were hoping in 10 years’
time India will be fully explored, at least seismically and geologically, if not fully drilled. But the current speed will require 20 more years to explore India. So obviously, earlier we were going for exploration rounds every year but to speed up, the policy was changed to go for every 6 months. From 1991 to 1993, we gave blocks every 6 months and we also gave marginal fields. We still have 87 marginal fields which we have not offered yet and these marginal fields have capacity of producing at least 15 million tons of oil. So we need now a policy to offer more blocks.

The scenario, however, is not very satisfactory in the case of Coal Bed Methane (CBM). For developing CBM in 2001, 02, and 03, we offered blocks every year. After of a gap of two years we again offered a block in 2006, and after another gap of 2½ years, we offered blocks in 2009 and after 2009 we offered no blocks to CBM. The first thing to do is to offer more blocks. I tried to start open acreage system way back in 2003. However, because of various issues it didn’t get introduced. It is high time that we should have open acreage system introduced immediately. Everything—all policy issues—already have been decided now, the rest should come as quickly as possible. We should aim at shale oil; we are not aiming at shale gas. When you are producing hydrocarbons from shales from known producing basins like Cambay, and of course even KG and Cauvery they are all wet shales; you have got to produce shale oil first. You can get $100 to $105 return if you produce shale oil; you can get a return of only $40–45 if you produce shale gas. So why should anybody produce shale gas which has got more problems? We should produce shale oil. The expenditure is the same, fracking, drilling mechanism is the same, acquisition of land is the same so why not to produce oil? So we should talk about shale gas and shale oil and not just shale gas policy. We have 200 blocks available with CIL (Coal India Limited) and other 86 blocks are available with the private companies, from where we can reign in gas before we mine coal. And these blocks should all have 0.1 to 0.15, could be even 0.2 Trillion Cubic Feet (TCF) of gas.

Also we can see 200 to 300 more blocks coming up with 10 to 20 blocks every year for drainage of methane before they are mined. That itself can produce 20 TCF of gas. I am extremely happy that the Cabinet has recently approved the price of gas. You will see a sea change in the domestic production of gas in the next three years or even earlier.

Now hydrate deposits with India are 1800 TCM (Trillion Cubic Metres). We produce 1% of that hydrate only. If you can, you will have self-sufficiency for gas for 60 years, by producing just 1% of hydrates. So that is something that we should do….So these basins have tremendous capacity to produce shale gas and we should look into it. But nobody is
going to go and work there unless the Government gives incentive and this has to come in as a policy issue to the Government.

For non-producing basins you would be giving incentives to an oil company to go and drill wells there. And then we come to other incentives now even in certain parts of the North East, certain parts of Lower Himalayas. Similarly, in ultra-deep waters incentives are required for people to go and invest money. Why should somebody go and drill a $60 million well in ultra-deep water? So either you give an incentive for the first well or an incentive for the first two years or something similarly, so these areas can be opened for exploration and production.

Similarly for OLAP, one is not sure about the periodicity of these bidding windows for blocks, the pricing framework for data, the resolution of inter-state issues, and how clearances and permits would be streamlined. OLAP may create more confusion than it can solve using the existing institutional mechanism.

To conclude, it is thus clear that the need of the hour is to offer more blocks for exploration, accelerate CBM and Shale Oil & Gas exploration and also look at incentivizing exploration in unchartered territory. These are the solutions and we believe that they would help to increase domestic oil and gas production. Even if there is a no major discovery, it can augment our self-reliance over the next couple of decades to levels where we are materially less dependent on imports of oil & gas.

**Discussion, Conclusion, and Policy Prescriptions:**

The various points pertaining to the Indian exploration and production policy framework discussed under different subheadings in this chapter will be consolidated and presented in the paragraphs ahead:

This chapter was devoted to discussion of the New Exploration and Licensing Policy (NELP) in detail. We had also examined in detail two important reports of the government of India, i.e. Report of Vijay Kelkar Committee and Report of Rangarajan Committee in this connection that have examined various aspects related to exploration and production policy framework as well as exploration and production operations. More specifically, we have attempted to dissect Open Acreage Licensing Policy, compared it with NELP and contrasted the different provisions under these policies.

While examining the problems related to exploration and production, the following explicit problems were identified for slow progress in exploration and production activities:
• Only a few wells are actually producing oil or gas.
• Well-explored basinal area has increased only marginally from 16 per cent to 22 per cent.
• There is declining interest in NELP auction rounds (in the latest round, only 14 out of 34 block on offer were awarded.
• Participation of international players remains low (Twelve per cent of total acreage and seven per cent of total contracts)

However, as examined earlier, the problems for this state of affairs basically are not the result of provisions in the E & P policy. On the basis of our analysis, we have concluded that the Production Sharing Contract system which is presently operational is a good policy framework, which is globally accepted as a fair risk allocation framework. It balances the risk-reward framework well. On the policy aspect we have also noted that the investors or bankers do not have any dispute with the policy framework. We have therefore concluded that replacing PSC system with the revenue sharing system will not achieve right results of attracting more foreign investors. We, therefore, need to look elsewhere to find causes for deficient interest especially on the part of foreign investors and remedy the problem. Our earlier analysis clearly demonstrated that the problems are mainly administrative in their origin. These are:

• Tardiness on the part of the government in offering blocks of economic size. Delays in providing approvals by the central government and the state governments are also cited as reasons. According to BCG, companies were actually complaining of long delays and the consequent cost and time overruns.
• Inadequate technical capacity due to limited technical staff in the Directorate General of Hydrocarbons resulting in indecisions and delays.
• Information asymmetry between the operator and the government.
• Fiscal Instability in the country is another cause for lack of interest on the part of foreign investors.
• Price Control mechanisms have created huge controversies in the past.

To take care of the causes of the problem identified, we need to work on improving efficiency in administrative decision making as well as implementation process to avoid undue delays which upset the investment plans of the international operators. We may have to seriously work on positioning the country as investor friendly to improve FDI in the Oil and Gas sector by removing uncertainties pertaining to fiscal aspects.
We have observed from our analysis that the Indian Production Agreement or Contract system under the New Exploration Policy is sound and comparable to similar agreements used by other countries in the world. In certain respects, the terms in the contracts are very similar to the international practices or even better than that of other countries in the Asian region. However, it must be noted here that we are still not able to attract a large number of foreign oil companies for exploration and production in India in spite of a favorable policy. It must also be stated here that not just foreign companies but even Indian companies also need to be attracted to participate in oil exploration and production in India. The following are some the steps, in addition to administrative reforms, that could be taken up to make investment more attractive in the oil and gas sector in India. The suggestions are:

- Creation of a Price Stabilization Fund: We have noticed very large swings intermittently in prices of crude oil in the world market. The prices were very high till recently with occasional minor declines from time to time. In the recent times, however, the prices have gone even below average costs of production in certain countries creating serious dilemma for the producers whose production costs are higher than the presently prevailing prices. Prices below production costs have serious implications with regard to maintenance of oil assets, and long run investments. It also has implications on development of nonconventional sources of energy. Even the Shale oil and gas sector has been adversely impacted because of the impact of low prices of oil on their cost structure. Experts believe that a price of $70 per barrel of oil is necessary for the Shale sector to sustain. Price instability, therefore, has serious deleterious effect on the oil sector development. It is, therefore, suggested that we may create a special Price Stabilization Fund that would balance the prices better, thus avoiding the deleterious effects of price fluctuations from time to time.

- The Price stabilization fund may be started with an initial outlay of, say, $5 billion for price stability interventions.

- An average price could be worked out, say at $90 per barrel (or even $100) as a guaranteed minimum price, in consultation with the stakeholders in India as the base price for starting operations of the stabilization fund. When the world market prices go higher than the average calculated prices, the funds may be utilized to reimburse the producers, so that the producers do not incur losses. Similarly during the times of down trend in prices (below the estimated average price), the producers could be asked to give back the difference, as they would be earning supernormal profits. It is expected that price stabilization under this programme would attract more investment in the sector as this diminishes a lot of uncertainties.
In conclusion on the topic it must be emphasized here that though we believe that the market mechanism is the most desirable policy option, we may have to make some departures in view of the urgent need to develop the sector within the reality of the present situation.

Exploration of Shale Oil & Gas: Exploration and production of Shale Oil and Gas has changed the energy outlook in USA in the recent times. USA has become a net exporter as a result of development of Shale sector. The present decline in international oil prices is also attributed to development of Shale sector in USA. A number of oil and gas experts in India believe that India has reasonably high Shale Oil and Gas deposits which are yet to be explored for production and when fully developed, it could change the fortunes of our economy.

However, a major aspect of the sector at the moment is lack of interest to explore Shale assets in India by Foreign Oil Companies (FOCs). It is said in the oil circle that one of the major problems causing disinterest is related to the state of our geological data. The E&P expert committees appointed by the government have made recommendations for creation of a National Data Repository under the Directorate General of Hydrocarbons for geological data, which is expected to provide better access to quality geological data. Nevertheless, it must be stated here that India does not have experts to study and interpret the data available with the Directorate General of Hydrocarbons, as a result of which we are not able to attract investment in E&P. More accurate interpretation is essential for better targeting and thereby to bring down the rate of failures and thus investment costs on the part of the investor. It is expected that more accurate data therefore will kindle interest of investors. Immediate efforts are therefore necessary to recruit and train professionals and create a pool of experts, which would make our interpretation of data more accurate, thus bringing higher investments to explore in this sector.

With regard to development of Shale sector in India, there is also a serious concern with technology. As we do not possess technology at the moment, collaborative route as well as training of personnel on an urgent basis is the other measures suggested for development of the shale sector in India.

Another major problem is related to land issues. India definitely has a problem pertaining to land availability. Government may have to, therefore, incentivize for land availability. In view of the above difficulties, development of Shale sector could be part of policy in the long-run.

In the next chapter we will discuss India’s energy assets acquisition programme.
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