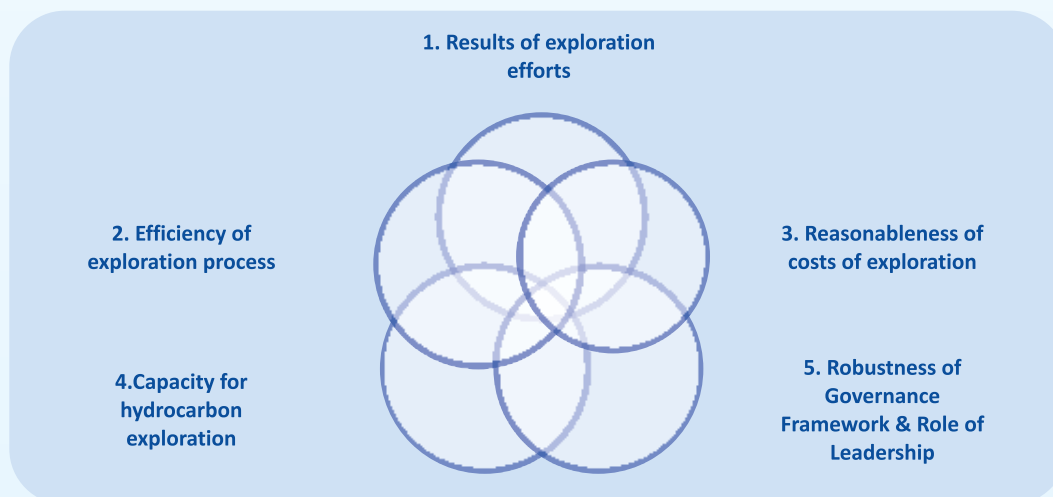


Executive Summary

Performance Audit of hydrocarbon exploration efforts (2007-08 to 2010-11) of Oil and Natural Gas Corporation Limited (ONGC) was conducted *to ascertain whether ONGC's exploration efforts had been taken up with proper planning and executed with efficiency and effectiveness to achieve its own and the nation's envisioned hydrocarbon goal*. The audit conclusions based on detailed examination of records of Basins and Services, at the corporate level of ONGC, at the Ministry of Petroleum and Natural Gas (MOPNG) and the Directorate General of Hydrocarbons (DGH), through other national and international sources are detailed below:

Results of Exploration efforts – ONGC mainly operates in its producing fields to meet both, reserve accretion and production targets. Lack of adequate efforts and results in new fields, coupled with the ageing of producing fields, is a matter of concern for future.



- The actual reserve accretion through exploratory wells, wildcat wells and appraisal wells accounted for only 13 *per cent* to 38 *per cent* of the MOU targets set for the Company by MOPNG. The 'finding cost'¹ was also understated by US \$ 4.84 to US \$ 21.71/boe².

(Para 3.1)

¹ Finding Cost is the cost of finding reserves calculated by dividing the exploration cost by ultimate reserve accreted.

² boe: barrel of oil equivalent. A term used to summarize the amount of energy that is equivalent to the amount of energy found in a barrel of crude oil.

- Despite acquiring 89 prospective blocks out of 120 blocks upto VIII round of New Exploration Licensing Policy (NELP), ONGC made only 11 discoveries in 8 blocks. The Company did not complete its committed work in 25 prospective blocks and drilled only 30 out of 90 committed wells within the specified period. In 74 *per cent* of highly prospective blocks acquired by the Company under NELP I to V rounds, ONGC could not complete its work commitments.

(Para 4.3 and 4.3.1)

- Though ONGC made 99 discoveries in NELP and Nomination blocks over 2007-2011, it accreted a reserve of only 80.93 MMT³. A comparison of discoveries in the NELP regime shows that despite its large acreage and rich experience in Exploration and Production (E&P) sector, ONGC made lesser discoveries than new entrants like Gujarat State Petroleum Corporation (GSPC) and Reliance Industries Limited (RIL).

(Para 3.1 and 3.2)

- ONGC had monetized⁴ only 73 out of its 158 discoveries made during 2002 to 2011. The Company succeeded in monetizing only 2 out of the 56 offshore discoveries. In fact, non monetized offshore discoveries contained major reserve accreted.

(Para 3.4)

- ONGC has been maintaining a reserve replacement ratio (RRR⁵) of more than 1. However, the RRR shows an increasing trend mainly on account of upward trend in reserve accretion (due to reinterpretation and development drilling) and downward trend in production due to ageing fields and delay in monetization. Consequently, ONGC's healthy RRR of >1 is in fact due to a static/declining trend of production and reserves being accreted mainly through reinterpretation.

(Para 3.3)

Efficiency of Exploration Efforts – ONGC's exploration processes were far from being efficient. Cost overruns and shortfalls in survey and drilling targets were noted.

- Less than 50 *per cent* of the Basins were only able to meet 2D/3D survey targets. Despite assurances by ONGC in response to previous Performance Audits conducted by the Comptroller and Auditor General of India (C&AG), ONGC did not fix norms for completion of the Acquisition, Processing and Interpretation (API) cycle. In nearly 40 *per cent* of the projects, ONGC took more than 2 years to complete the API cycle, leaving a little time for drilling of committed exploratory wells within the phase. This led to extensions and payment of liquidated damages of ₹133.03 crore to MOPNG for not drilling 24 wells in 13 blocks within the committed period.

(Para 4.1.1 and 4.1.2)

³ Million Metric tonnes of oil equivalent.

⁴ Monetization is the process involved in bringing the hydrocarbon discoveries of a field/block to commercial stage.

⁵ RRR measures the relationship between new reserves accreted and oil produced, reflecting how well an oil company is replacing its production.

- ONGC was tardy in purchase of a seismic survey vessel. Though procurement process was initiated in 2004, a vessel was yet (March 2012) to be purchased. Survey vessel continued to be hired leading to an extra cost of ₹ 128.98 crore per annum.

(Para 4.1.4)

- ONGC lost field season⁶ due to delay in award of survey contracts. While the normative period required for tendering process is 125 to 140 days, ONGC took upto 178 days for finalization of contracts. Delays in tendering defeated ONGC's exploration objectives of timely acquisition of seismic data.

(Para 4.1.5)

- There was a shortfall of 3,32,855 metres and 109 wells in ONGC's exploration performance. Except Western Offshore Basin, none of the other Basins could drill the targeted exploratory wells.

(Para 4.2)

- Even as ONGC failed to acquire planned rigs for its operations, there were delays in hiring and mobilization of rigs leading to a shortfall of 47,450 metres of drilling meterage and delay of 2,592 rig days in rig mobilization due to monsoon intervention.

(Para 4.2.5)

- ONGC's owned rigs were less efficient than the hired rigs. Despite refurbishment, cycle speed⁷ of ONGC's owned rigs was lower than that of chartered hired rigs by 11 per cent.

(Para 4.2.1 and 4.2.6)

- ONGC took 7 per cent to 16 per cent extra days for drilling as compared to its own norms. As against the international norm of less than 5^a per cent and ONGC's own norm of 10 per cent, the actual non productive time of rigs (average) was 19 per cent. A comparative analysis carried out by DGH showed that ONGC's drilling performance in terms of average metres drilled per day (well depth/ total drilling days) was below the drilling performance of another National Oil Company viz. Oil India Limited (OIL) and other private operators.

(Para 4.2.1 and 4.2.2)

- There was a substantial shortfall in achievement of exploratory drilling targets as compared to development drilling. ONGC's preference for development drilling was also a contributory factor to non achievement of its exploratory drilling targets.

(Para 4.2.8)

⁶ Field season: The window of fair weather period in a year during which the seismic survey is normally conducted.

⁷ Cycle speed: Meterage drilled per drilling rig month during the complete period from release from earlier well and mobilization to release for next well.

^a Based on an internal audit report (2006-07) by M/s. Ernst & Young on Western Offshore Drilling Services of ONGC.

- DGH did not clarify its stand on acceptance of the type of survey conducted in comparison to the work commitments in NELP blocks leading to delays in exploration.

(Para 4.3.2)

Capacity for Exploration and Costs of Exploration – There was a lack of independent assurance on its technology and its HR policies and practices that revealed critical gaps.

- A comparison of physical achievements vis-à-vis financial provisioning indicated that the allocated budget remained under-utilised (as high as 12.2 *per cent* in 2009-10), the shortfalls in achieving physical targets for surveys and drilling of exploratory wells was significantly higher (upto 60 *per cent* in surveys and 29 *per cent* in exploratory wells) than the shortfall in utilisation of budget provision indicating poor budgetary control.

(Para 5.2)

- Despite advice and concerns raised by the Planning Commission, ONGC was yet to undertake any independent assessment of its technology. While the Management is confident that ONGC's technology is up to date – only an independent assurance can provide the necessary credence.

(Para 5.3)

- Acute shortage of operating crew for rigs seriously impacted the efficiency of ONGC's owned rigs. Fifty two *per cent* of the total attrition took place from exploration and drilling groups. The highest level of attrition (63 *per cent* and 68 *per cent* in drilling and exploration respectively) took place from ONGC's most experienced, trained and qualified personnel. Besides, there was lack of succession planning at the top level and important Board level positions continued to remain unoccupied for long periods.

(Para 5.1.1, 5.1.2, 5.1.3 and 5.1.4)

- The current system of empanelling experts and consultants does not provide for a competitive bidding process to acquire quality services at competitive costs. As the Basins that hire consultants do not send appraisal reports to the Corporate Exploration Center, effectiveness of their services could not be gauged. Further, 50 *per cent* of the consultants hired were ex ONGC employees.

(Para 5.1.5)

Robustness of Governance Framework and Role of Leadership – Performance accountability arrangements for ONGC did not place the desired emphasis on exploration efforts.

- Despite the fact that exploration is a core activity for ONGC, its Memorandum of Understanding (MOU) with MOPNG has only two performance parameters for exploration – 'reserve accretion' and 'finding cost' with a combined weightage of only 4.5 *per cent*. In fact, over the period 2007-11, the weightage assigned in the MOU to reserve accretion declined from 8 to 4 *per cent* while the weightage for finding cost went down from 2 to 0.5 *per cent*.

(Para 6.2)

- ONGC used different criteria for target setting and reporting on exploration parameters of the MOU. While the Company sets reserve accretion targets based on reserves accreted through exploratory wells, wildcat wells and appraisals, the reporting against this target included reserve accreted through reinterpretation and development drilling also, reflecting a higher performance than actuals on reserve accretion which misleads the stakeholders. In fact, actual reserve accretion through exploratory wells, wildcat wells and appraisals accounted for only 13 per cent to 38 per cent of the total reserve accretion reported while through reinterpretation was 59 per cent to 63 per cent and through development drilling was 3 per cent to 27 per cent during 2007-11. Thus, if performance on reserve accretion was appropriately reported, it would reveal a performance way below the MOU targets. While ONGC reported on reserve accretion targets by including reinterpretation and development drilling, their cost was not included while working out the finding cost. Consequently, the finding cost of ONGC exploration activities exceeded the targets by 129 per cent to 648 per cent.

(Para 6.3)

- While ONGC's strategic plan is aligned to the Government of India (GOI)'s Hydrocarbon Vision 2025, its own five year and annual plan targets do not stretch to meet these envisioned objectives. The ONGC Board, which is responsible for oversight and accountability, has not ensured alignment between strategy and plans. It has also failed to take care of the governance issues like target setting and reporting on exploration performance.

(Para 6.1)

- ONGC did not benchmark its exploration performance. The Company informed that they undertake internal peer benchmarking only and that they are unable to find suitable performance parameters and information for international benchmarking. In the absence of such benchmarks, assurance on performance could not be satisfactorily derived.

(Para 6.4.3)

Recommendations:

ONGC should

1. **Strengthen the performance accountability framework for exploration** – As the flagship E&P National Oil Company, it is incumbent on ONGC/ MOPNG that more weightage be assigned to exploration efforts in the MOUs that are signed every year. Weightage given to reserve accretion and finding cost should also be appropriately increased. ONGC Board should ensure that the criteria used for reporting on reserve accretion matches the targets set in the MOU. MOPNG may also review the MOU parameters to ensure that the performance measures set for exploration are adequate and appropriate to objectively measure exploration performance. There should be greater transparency in reporting on the MOU targets.

- 2. Introduce a MOU parameter for monetization of discoveries** - Discovery to stream in case of major offshore discoveries may be rigorously pursued to enable higher level of production from new fields. In order to ensure that reserve accretion translates into increase in production, MOPNG may consider introduction of a new performance parameter in the MOU that assesses ONGC's performance with respect to monetization of discoveries.
- 3. Benchmark Exploration Performance** – ONGC needs to take suitable initiatives to strengthen internal peer benchmarking across the organization and draw suitable linkages to target setting and performance evaluation based on these benchmarks. In this regard, DGH may be ideally positioned to standardize performance parameters and benchmarks for the E&P industry in India. Target setting within ONGC and for the MOU should be done on the basis of internationally benchmarked exploration performance on important exploration parameters viz. reserve replacement ratio, finding cost, success rate of exploratory wells and proved oil and reserve growth.
- 4. Improve efficiency of Exploration Process** – Systemic lacunae in tendering and award of contracts pointed out in this report should be addressed to improve efficiency of exploration process. Norms have also to be fixed for the acquisition, processing and interpretation (API) of seismic data cycle to ensure efficiency.
- 5. Ensure independent assurance on Technology** – As suggested by the Planning Commission and as decided by its Board, ONGC must carry out an independent assessment of technology in vogue in the Company to provide an assurance that it is indeed up-to-date.