

RESULTS OF ONGC'S EXPLORATION EFFORTS

The main objective of exploration is to accrete reserves such that production of hydrocarbons is sustained. The results of exploration efforts can be measured through four main parameters - Reserve accretion through exploration, Finding cost of accretion, Reserve Replacement Ratio (RRR) and Discoveries leading to production. To assess the results of ONGC's exploration, the following issues have been addressed:

- Whether the reserve accretion as a result of exploration efforts was satisfactory;
- Whether the finding cost of reserves accreted was reasonable;
- Whether ONGC's discoveries compared favourably with its peers; and
- Whether ONGC had taken timely action in monetizing its discoveries.

The results of our audit examination are detailed below:

3.1 Reserve Accretion¹⁴

The Basin-wise targets for reserve accretion through exploration as per performance contracts entered into by Director (Exploration) and achievement thereagainst during the four year from 2007-08 to 2010-11 (as reported by ONGC) are given below:

Achievement of reserve accretion targets (in MMToe)								
Basin	2007-08		2008-09		2009-10		2010-11	
	Target	Actual	Target	Actual	Target	Actual	Target	Actual
W. Offshore	20.0	11.43	20.00	3.12	22.35	6.11	12.00	16.70
W. Onshore	5.20	2.94	4.41	0.78	4.95	2.48	4.92	5.38
A&AA	4.90	3.14	8.50	3.87	8.60	3.49	6.30	1.47
Cauvery	1.70	-0.04	8.05	0.29	3.25	0.27	6.25	0.44
KG-PG	16.50	2.73	29.25	0.56	25.25	3.87	39.25	7.00
MBA	6.30	2.01	2.50	0	8.60	2.12	7.45	0.77
Frontier	0	0	0	0	0	0	0	0
Total	54.60	22.21	72.71	8.62	73.00	18.34	76.17	31.76

Source: Performance Contract Targets set for Basins for 2007-11 and actual furnished by ONGC.

As against the aggregate target of 276.48 MMToe, the actual reserve accretion was only 80.93 MMToe (29% of the target) even though the total number of discoveries was 99 (88 Nomination and 11 NELP). As the above table indicates, except for two Basins (Western Offshore and Western Onshore) in the year 2010-11 and Frontier Basin which did not have any reserve accretion targets, none of the Basins achieved the reserve targets during the four years under consideration. The shortfall in the key performance

¹⁴ Reserve accretion is the accretion/addition to recoverable hydrocarbon reserves.

parameter in the MOU of 'reserve accretion' has been discussed in Chapter 6. The reserve accreted through exploration alone was only 13 *per cent* to 38 *per cent* of the MOU targets set for the Company. The finding cost in the four years under audit has exceeded the MOU targets by US \$ 4.84 to US \$ 21.71 per boe that worked out to 129 to 648 *per cent* (reference para 6.3.2).

ONGC in reply stated (March 2012) that reserves accretion as a whole needs to be considered while judging the performance. The Company also stated that it has been able to over-achieve its accretion targets all these years.

ONGC's response is not acceptable as the Basin wise targets are set for accretion through exploratory wells, wildcat wells and appraisal wells. By their own admission, ONGC does not set targets for reinterpretation and development drilling. As such, while assessing performance against targets, it is fair that only a like to like comparison is done.

3.2 Hydrocarbon discoveries by ONGC

Under the NELP regime (upto February 2011), ONGC, Oil India Limited and other private companies had made 83 NELP discoveries - 38 oil and 45 gas in NELP block acquired by them. A comparison (table below) indicates that performance of ONGC was less even though it had the largest acreage under NELP and a rich experience in the E&P sector.

Discoveries of ONGC and private parties (from inception to February 2011)		
Company	Oil	Gas
ONGC	5	13
Essar Oil Ltd	4	0
Focus	0	2
GSPC	11	8
Hardy	0	1
HOEC	1	1
Jubilant	2	3
RIL	11	15
Cairn	3	2
Total	38	45

Source: Data furnished by ONGC in December 2011.

The Secretary (MOPNG) during the Sixth Strategy Meet (August 2007) opined that ONGC would become a marginal player in case the organization is not able to set right its priorities and align its actions along the mandate. He further observed that smaller and nimble companies were proving formidable and ONGC would have to register exploration successes and strengthen its systems to retain its position in the industry.

The Management stated (December 2011) that it made 22 discoveries (18 upto February 2011 and 4 from February 2011 to March 2012) from NELP blocks between 2005-06 to 2011-12; all the initial discoveries were gas discoveries and that too in deepwater and that appraisal/development programme had been submitted in majority of the cases. The Management also stated that while other companies listed by Audit were operating under NELP regime alone, ONGC in this period operated in NELP as well as Nomination blocks and a better comparison would be the total number of discoveries by ONGC during this period in both NELP and Nomination regime. ONGC reiterated that during the period under audit, ONGC made 88 discoveries in Nomination blocks and 11 discoveries in NELP blocks and these 99 discoveries are the highest by any company operating in India; though many of the companies listed by Audit can hardly be called ONGC's peer.

The response of ONGC is not acceptable. A comparison of NELP and Nomination discoveries with only NELP discoveries by private operators would not be fair as

- (i) The private operators do not have access to Nomination blocks.
- (ii) Nomination blocks were in the possession of ONGC for more than 12 years without the stipulation of the conditions, regarding time schedule etc., contained in the Production Sharing Contracts (PSCs) attached to the NELP blocks.
- (iii) ONGC did not explore completely the nomination blocks. In seven blocks which were surrendered (2007-11) after being held for 12-14 years, the API and drilling commitments for wells had not been completed. There was slow progress of exploration in six other blocks which had been held for 13 to 25 years as brought out in *Annexure II*. The performance of ONGC also needs to be seen in the context of its being a well established E&P player since 1959, while the private operators are new entrants.

3.3 Reserve Replacement Ratio¹⁵ (RRR)>1 due to downward trend of production

RRR measures the relationship between new reserves accreted and oil produced, reflecting how well an oil company is replacing its production. Arithmetically, it is calculated by the following formula:

$$\text{RRR} = \frac{\text{Ultimate Reserve accreted during a year}}{\text{Total production of hydrocarbons during the year}}$$

It is essential for an E&P company to replenish its reserves from which it produces oil and gas. One of the main objectives of exploration policy under 'India Hydrocarbon vision-2025' was to achieve the RRR above 1.

ONGC achieved a RRR of more than one during all the years under audit examination. The production of crude oil and natural gas as against the Ultimate Reserve (UR) and the RRR of ONGC for the last four years ended 2007-11 is tabulated below:

¹⁵ Reserve Replacement Ratio is the quantity of hydrocarbon added to ultimate reserves divided by the quantity of hydrocarbon extracted during a year.

Oil and gas production

Sl. No	Particulars	2007-08	2008-09	2009-10	2010-11
1.	IIH (MMtoe)	182.23	284.81	250.6	236.92
2.	UR (MMtoe)	63.82	68.90	82.98	83.56
3.	Oil Prod.(MMtoe)	25.96	24.42	23.93	23.58
4.	Gas Prod. (MMtoe)	22.33	22.28	22.91	22.90
5.	Total Prod.(MMtoe)	48.29	46.71	46.84	46.48
RRR (Sl.No.2/Sl.No.5)		1.32	1.48	1.77	1.80

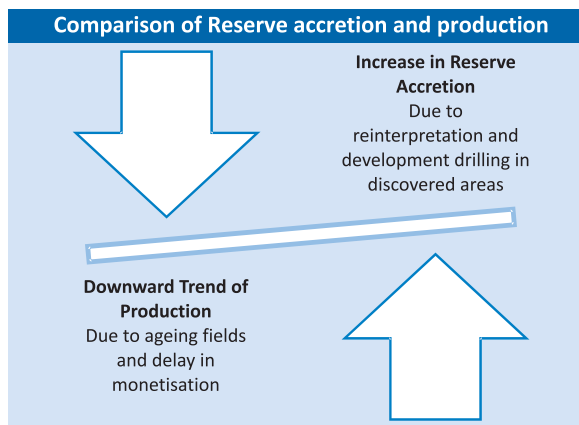
Source: Data furnished by ONGC for 2007-2011 in December 2011.

On analyzing this performance further, it is seen that the ratio has increased over the years while the production levels in ONGC showed a downward trend. The reserve accreted was mainly on account of reinterpretation and development drilling (as explained in chapter 6), rather than exploration activities in new acreages. In fact, the reserve accreted from new discoveries was only 80.93 MMToe. On the other hand, ageing fields and ONGC's failure to monetize discoveries resulted in a downward trend in production.

In fact, the issue of static production in spite of steady increase in RRR has been deliberated at various forums viz. Standing Committee of the Lok Sabha/Rajya Sabha, Strategy Meets and Quarterly Progress Review Meetings (QPRM) with MOPNG and in Parliamentary Questions. During the 6th Strategy Meet (August 2007), the Secretary

(MOPNG) stated that reserve accretion is to be translated into production. He also stated that ONGC's reserve factor is a matter of concern and issue to be addressed on priority. In the 7th Strategy Meet (September 2008) the Additional Secretary (MOPNG) pointed out that despite having several nomination and pre-NELP blocks, ONGC has not been able to increase production and that in the proposed production plan for 2009-14, not a single NELP block is coming on production. Non increase in substantial level of production of the Company was also deliberated in the Lok Sabha report of 2009. In response to Lok Sabha questions, ONGC reported that majority of its producing fields in onshore and offshore areas were two-to three decades old and had passed their peak production and that major accretions in recent years were in the offshore areas where more lead time was required for monetization.

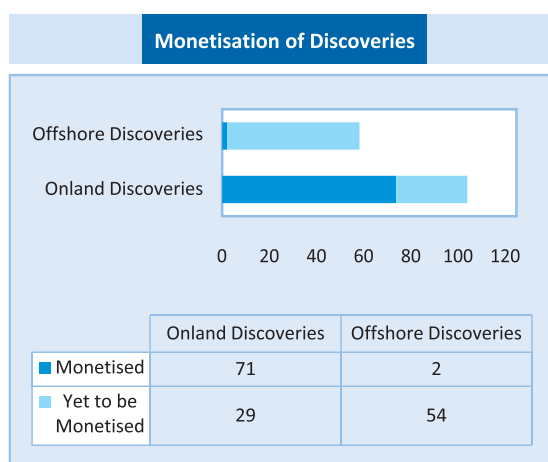
In reply to Audit, ONGC stated (March 2012) that reserves accretion through reinterpretation is nothing but an exploration effort and that such accretion has a



direct contribution in production and indicated the increase in production and reserve accretion in respect of five major ONGC fields viz. Cambay, Upper Assam, Mumbai Offshore, Cauvery Onshore and Assam-Arakan-Forward Base over the last 12 years from 2000 to 2011.

The increasing trend of RRR mainly due to downward trend of production cannot be an appropriate barometer to assess the growth of reserve replacement. Besides, masking the results of exploration by supplementing it with development drilling and re-interpretation does not present the actual exploration results. Diminishing trend in find size, reduction in number of nomination blocks, dissatisfactory performance in NELP regime, delay in monetization of discovery/marginal fields, slippages in implementation of ongoing development schemes and major producing fields and higher exploration risks in deepwater and frontier areas, are some of the challenges that ONGC needs to address for a steady future performance. The suitability of RRR as it exists now as a performance parameter also needs to be reviewed in this context.

3.4 Discovery to stream



Source: Data furnished by ONGC in December 2011.

One of the main reasons for declining production is delay in monetization¹⁶ of discoveries. As seen from the chart alongside, more than 50 per cent of the 158 discoveries (100 onshore and 58 offshore, including two offshore discoveries surrendered) made during 2002 to 2011, were yet (March 2012) to be monetized. Majority of the non monetized discoveries were located in offshore acreages, where major reserve was accreted.

Delay in monetization of discoveries is one of the major concerns for ONGC and repeatedly deliberated at various forums by internal and external stakeholders viz. Executive Committee Meetings, Board Meetings, Quarterly Progress Review Meeting with MOPNG, Standing Committee of the Lok Sabha and the Rajya Sabha. All stakeholders have stressed on development of fields expeditiously and reduction in the timeline for discovery to stream.

ONGC in reply stated (March 2012) that there were delays in monetizing the discoveries due to lead time on logistics, isolated areas, non feasibility of technology for offshore fields development, non-viability of discoveries forbidding stand alone development, governance of NELP discoveries under provisions of PSC,

¹⁶ Monetization: The process involved in bringing the hydrocarbon discoveries of a field/block to production.

requirement of innovative technology for deep water discoveries and marketing issues *etc.* ONGC also added that many of the offshore discoveries by private operators were yet to be monetized due to reasons similar to ONGC's, though ONGC does not have any means for getting authentic information.

The reply is to be viewed in the backdrop of monetization of only 2 out of 58 offshore discoveries so far while two other discoveries were surrendered/mining lease was not granted. ONGC had not monetized 18 discoveries (onshore – 4, offshore Shallow water – 7 and Deepwater blocks – 7) with IIH¹⁷ of 171.81 MMToe which were discovered prior to 2005-06. In this regard, DGH had also commented (31 August 2009) that ONGC's efforts in conversion of discoveries into production were found to be lagging behind in comparison to achievement of other private companies operating in India.

¹⁷ IIH:- Initial –in –place Hydrocarbons are the volumes of crude oil, condensate, natural gas, natural gas liquids and associated substances anticipated to be present in known accumulations at a given time.