

CHAPTER 4

EFFICIENCY AND ECONOMY IN SURVEY PROCESS

In order to examine the efficiency and economy of OIL's survey process consisting of Acquisition, Processing and Interpretation of data (API), audit reviewed the activities undertaken by OIL during survey, which is considered vital for the organization for achieving the exploration goal. Since seismic data is collected through 2D/3D surveys by OIL's own survey equipment (in-house) as well as by contractual hiring, audit reviewed the survey contracts to point out deficiencies in management of contracts leading to delay and shortfalls in Nomination Blocks and underachievement of MWP in NELP Blocks.

4.1 Shortfall in Acquisition, Processing and Interpretation of Seismic Data

OIL sets its BE and RE targets for API and submits it to the MOPNG. The BE and RE targets and actuals of API during 2009-10 to 2013-14 are given in Table 4.1 and subsequent figures 4.1 and 4.2:

Table 4.1 – 2D and 3D API Targets and Actuals

Year	2D				3D			
	BE Target (LKM) ²⁰	RE Target (LKM)	Actual (LKM)	Excess/ (Shortfall) against RE Target (LKM)	BE (Sq. Km) ²¹	RE (Sq. Km)	Actual (Sq. Km)	Excess/ (Shortfall) (Sq. Km)
2009-10	2325	1715	1308	(407)	2065	1002	984	(18)
2010-11	1260	1182	1149	(33)	1698	661	619	(43)
2011-12	2090	1317	1397	80	1767	1767	1838	71
2012-13	470	500	224	(276)	1570	1925	1795	(130)
2013-14	200	490	499	9	500	718	928	210
Total	6345	5204	4577	(627)	7600	6073	6164	91

Source: Annual Plan of OIL for 2009-10 to 2013-14

²⁰ Line Kilometre

²¹ Square kilometre

Figure 4.1 - Year-wise Target and Actual of 2D Seismic Survey

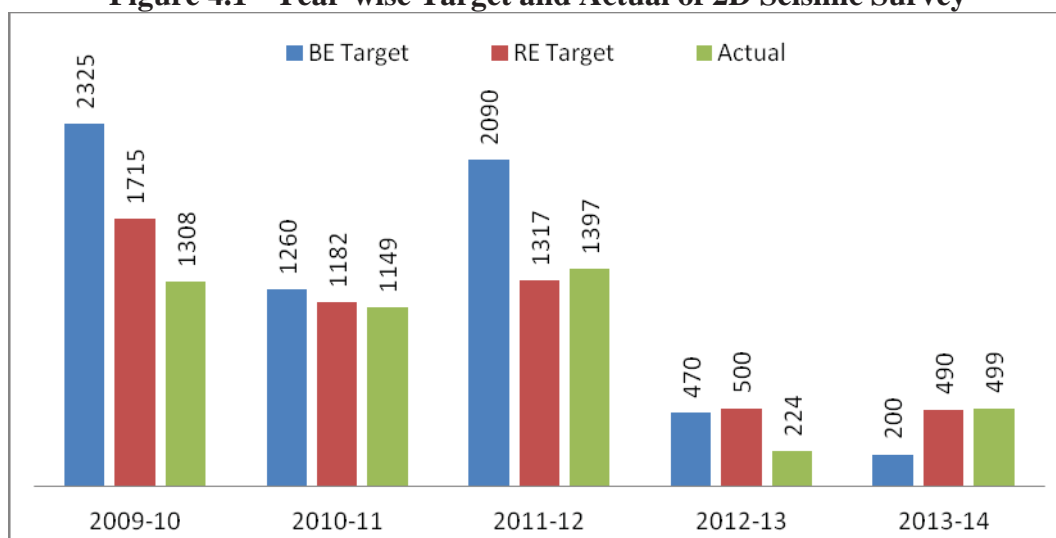
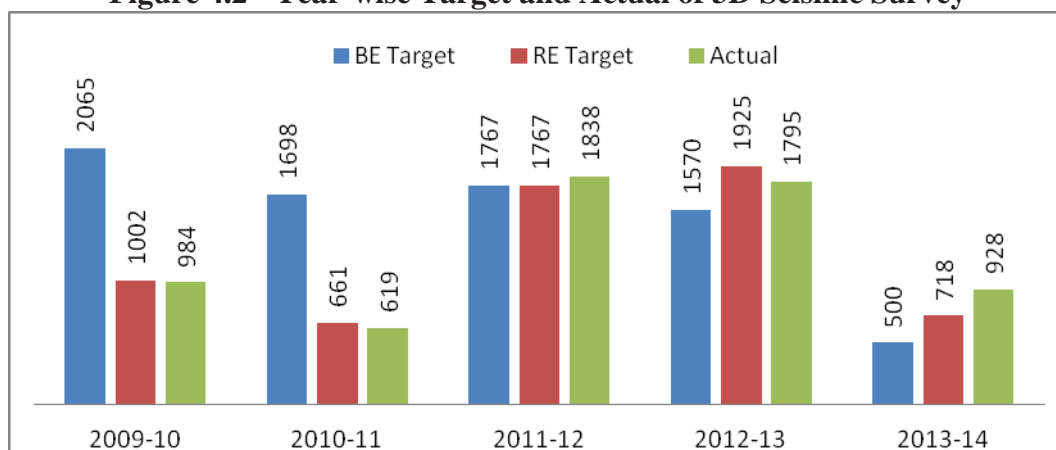


Figure 4.2 - Year-wise Target and Actual of 3D Seismic Survey



Audit observed that:

- OIL did not achieve its own targets of 2D survey with respect to revised plan target except for the years 2011-12 and 2013-14. Similarly, it did not achieve its own target in 3D for the years 2009-10, 2010-11 and 2012-13;
- The shortfall against 2D ranged from 3 to 55 per cent in 2009-10 to 2013-14 and the shortfall in case of 3D ranged from 2 to 7 per cent during the same period;
- OIL has reduced its 2D and 3D revised plan targets from its plan targets drastically in 2009-10. Further, OIL sharply reduced 2D targets in 2011-12 and 3D targets in 2010-11;

- While comparing the Planning Commission targets for 2D and 3D for 11th and 12th five year plan, audit noticed that OIL's 2D/3D targets were more or less in conformity with Planning Commission targets for the 11th five year plan. However, OIL drastically reduced its targets in both 2D and 3D in first two years of 12th five year plan, (lower by 2954 LKM and 1521 Sq. Km respectively from the Planning Commission targets, being 25 per cent and 63 per cent respectively); and
- The reasons for chronic shortfall in survey under 2D and 3D in different years were not placed before the Board for appraisal and for taking remedial measures.

Audit further observed that in Rajasthan, 2D survey was not taken up during 2009-10 to 2013-14 and there was a shortfall of 59 per cent against the plan target set for 3D survey. In Krishna Godavari, the achievements fell short of plan targets for 2D and 3D surveys by 49 and 64 per cent respectively during the last five years ending March 2014. In Cauvery, OIL failed to fix any targets for 2D survey against which 511 LKM of 2D survey was conducted during the period from 2009-10 to 2013-14. OIL stated (January 2015) that targets set for Cauvery were missed inadvertently in the annual plan.

While accepting the audit contention, OIL stated (April 2015) that the shortfall in 2D/3D data acquisition with reference to BE target was mainly in KG and Rajasthan Basins. The 2D/3D seismic targets set by Planning Commission in five year plan were broad targets as compared to BE/RE targets. The actual survey depends on various commitments and requirements in nomination blocks. Further the targets/achievements were appraised to the Board every year. OIL further stated that in Rajasthan basin, the shortfall was mainly due to delay in finalization of 2D contracts. The delay in KG basin was mainly for delayed receipt of Petroleum Exploration License from Puduchery Government and forest permission for reserve forest area. OIL further stated (May 2015) that they had not done any comparative study between MOU and Planning Commission target relating to survey and drilling target while fixing its own target.

The reply of OIL is not convincing as OIL needs to synchronize its own target with the Planning Commission target for achievement of national hydrocarbon goal. Further, the targets fixed by MOPNG to OIL are not in accordance with the Planning Commission target during 12th plan period. While Planning Commission targets are broader on a 5 year scale, they are fixed in consultation with MOPNG and OIL, keeping in view the overall

hydrocarbon scenario. Though statistical data of targets and achievements were placed before the Board but reasons for chronic shortfall in survey had not been placed for appraisal and taking remedial measures. Audit further observed that the shortfall in 2D and 3D seismic surveys were due to excess time taken in API cycle and other deficiencies in contractual management as detailed in the subsequent paragraphs.

4.2 Excess Time taken for API cycle

Timely acquisition, processing and interpretation of data through in-house survey equipment/contractual hiring are essential for completion of exploration activity as per the plan. Delay in API cycle has a cascading effect on total exploration period available to an E&P company.

4.2.1. In-house Survey

In-house survey work is carried out by Geophysics Department of OIL for acquisition and processing of data while interpretation of data is carried out by Geological and Reservoir (G&R) Department. The field days for acquisition work consist of mobilization, survey work, experimental work, production work, non-production work and demobilization days.

Audit examined 23 survey works, out of 26 in-house survey carried out during 2009-10 to 2013-14. Out of 23 survey works, 10 survey works were completed and 13 survey works were in progress as on November 2014 (Annexure II). The analysis of time taken in survey revealed the following:

- No norm was set/ fixed by OIL to carry out in-house survey work. In 10 completed survey works, time taken to complete the API cycle ranged between 472 and 2005 days.
- In respect of 13 survey works in progress, the works remained incomplete from 330 days to 2069 days after completion of acquisition/ processing of data. In respect of two survey works-in-progress viz., Jagun-Digboi-2D and Namsai-3D, no detailed information regarding present status of interpretation of data were made available to audit.
- In respect of six surveys carried out in-house, Geophysics Department took 25 to 464 days to start the work of processing after completion of data acquisition work.

- There was also a wide gap of 135 to 1362 days between completion of acquisition and processing work by Geophysics Department and commencement of interpretation of data by G & R Department.
- While OIL was setting time limits for the contractor, it was not setting any target dates for its in-house surveys. In absence of any norm, OIL did not have any control over the time schedule of survey work.

While accepting the audit contention, OIL stated (April 2015) that wide variations in API cycle of various surveys with respect to 10 completed works were primarily due to lack of in-house capability. This resulted in gap in API cycle activities in certain cases and was very difficult to standardize it, though there were broad norms in existence. However, the in-house capability in seismic data processing had been upgraded recently.

The contention with regard to existence of broad norms is not convincing as no supporting document was furnished by OIL in support of their views. Due to its inability to upgrade in-house capability of API processing, OIL relied more and more on outsourced survey which is being commented in subsequent paragraphs.

4.2.2. Outsourced Survey

Twelve contracts were outsourced for API cycle pertaining to various blocks in Assam & Assam-Arakan basin. Of these, eight contracts were for acquisition/acquisition and processing work and the remaining four contracts were for processing including interpretation of data. Details of time taken for API Cycle in respect of all 12 outsourced contracts are given in table 4.2:

Table 4.2 - Delay in completion of API

Name of the Block	Type of work	Contract No.	Time allotted to the Contractors (In months)	Actual time taken to complete API (In months)	Excess Time Taken (In months)
Mizoram	2D Acquisition	6102311	22.5	29.9	7.4
	2D Processing & Interpretation	6102869	18	37.9	19.9
	3D Acquisition	6204629	11	12.7	1.7
Karbi Anglong	2D Acquisition	6103105	15	24.3	9.3
Amguri & Dibrugarh	3D Acquisition & Processing	6102308	15	10.5	No delay
Amguri	3D Interpretation	6102789	1.5	5.1	3.6
Dibrugarh	3D Interpretation	6102789	2	4	2

Sadiya	3D Acquisition & Processing	6102875	11	12	1
	3D Interpretation	6102789	NA*	NA*	NA*
Namchik PEL & Ningru ML	2D Seismic data acquisition	6102866	24.5	27.6	3.1
Deomali & Namchik PEL	2D data acquisition	6102495	13.5	18.8	5.3
Kharsang/ Shongking	2D data acquisition	6102582	54	53	No delay

Note: *Not available

Audit observed that

- out of 12 contracts, excess time was taken in nine contracts (75 per cent) ranging between one month and 20 months, though in case of only five contracts Liquidated Damages (LD) were imposed on the contractor;
- the field season for acquisition of seismic data normally commences from October and lasts till May of next year, which are termed as operating months. Monsoon break covers the months from June to September during which work remains suspended owing to extreme climatic conditions. However, OIL did not lay down any norm or guidelines to ensure that schedule of survey work is prepared and contracts are awarded in a timely manner, so that the execution of survey work does not get hampered due to monsoon break;
- in Assam & Assam-Arakan, during the period from 2009-10 to 2013-14, eight²² survey contracts were executed for acquisition of 2D/3D seismic data, out of which, two survey contracts²³ were issued in February 2009 and November 2008 respectively as against the commencement of field season in October resulting in loss of five months and one month respectively.

OIL stated (April 2015) that in some blocks PEL deeds were signed in month of May-June which led to the award of contract in November and February and it was not in the hand of OIL to manage time in such cases.

²² Kharsank/ Shongking (2D), Mizoram (2D), Mizoram (3D), Karbi-Anglong (2D), Amguri & Dibrugarh (3D), Sadiya (3D), Namchik (2D) PEL & Ningru ML, Deomali & Namchik PEL (2D)

²³ Sadiya (3D) and Karbi-Anglong (2D)

The reply of OIL needs to be viewed in the light of the fact that in case of survey contracts awarded for Sadiya and Karbi-Anglong, the date of signing of PEL was September 2005 and February 2004 respectively whereas date of award of contracts were in February 2009 and November 2008. Thus, there was ample scope to avoid monsoon break.

4.3 Illustrative Cases in Survey Process

(i) Deficiency in Contractual Clause giving undue benefit to the contractor

OIL awarded (October 2013) a labour supply contract²⁴ to M/s Naren Sonowal & Sons (NSS) at a total cost of ₹ 3.10 crore for 3D seismic survey at Sadiya block (AA-ONN-2010/3) under NELP-IX. Due to non-compliance of contractual obligation, the above contract was terminated. In turn, OIL finalized another contract²⁵ with M/s R.C. Das & Sons (RCDS) at a cost of ₹ 4.98 crore (inclusive of service tax) for carrying out the remaining work.

As per Clause 19.01 of Special Conditions of Contract (SCC), if a contractor fails to fulfill any of its contractual obligations within time, OIL may get the job done by itself or through third party of its own choice and the contractor will reimburse cost as per 'actual' plus 10 per cent towards handling charges.

Audit observed that subsequent to the termination (February 2014) of contract with NSS, OIL decided (August 2014) that the extra cost involved for non-execution of the contract was to be reimbursed by the contractor, only after completion of job by RCDS, which was pending (April 2015).

Audit scrutiny revealed that though the reimbursement was to be the differential amount plus 10 per cent towards handling charges instead of 'actual cost' plus 10 per cent, OIL could not implement the same due to non-inclusion of such clause in the contract executed with NSS. As a result, OIL could not initiate action against the defaulting contractor for recovering the amount of ₹ 1.88 crore (₹ 4.98 crore – ₹ 3.10 crore) being the differential amount (apart from 10 per cent handling charges), except issuing a show-cause notice. It was also seen that clause No. 25 of General Conditions of Contract (GCC) states that the recoverable amount can be adjusted against any amount due or payable to the contractor (including security deposit refundable to them) under this contract or any other contract. The provision of clause

²⁴ Contract No. CDI 6107584

²⁵ CDI 6205280

25 of GCC was, however, not invoked. As such OIL could neither adjust the recoverable amount towards any other contracts by the same party nor forfeit the Performance Bank Guarantee (PBG) till date (April 2015). However, OIL decided to amend the clause suitably for all future tenders.

Thus, due to inclusion of defective contract clause, OIL could not initiate action for recovery of ₹ 1.88 crore apart from handling charges against the contractor and it may also lead to litigation in future for enforcement of the clause.

While accepting the Audit contention, OIL stated (April 2015) that the retention money and security deposit of the contractor against its only other concluded contract²⁶ was available with OIL. Since the remaining seismic data acquisition job in Sadiya was still being carried out by RCDS²⁷, it had not been possible to estimate the exact amount to be deducted from NSS. Hence, it was thought prudent to wait for the completion of the replacement contract to find out the exact differential amount and accordingly necessary advice would be made to recover the cost from NSS.

However, the fact remains that apart from handling charges, out of ₹ 1.88 crore recoverable from the defaulted contractor, the retention money and security deposit of ₹ 36.72 lakh is only available with OIL from all concluded and existing contracts.

(ii) Deficiency in Contractual Clause resulting in payment of penalty

Sadiya (AA-ONN-2003/3 under NELP-V) Block was awarded to OIL with the validity for exploration from November 2006 to May 2010 including extension of six months. OIL awarded the contract for acquisition and processing of 275 Sq.kms. of 3D seismic data to M/s KCS, Kazakhstan in December 2006. The contract was terminated afterwards due to extremely poor performance and non-acquisition of any usable 3D data by M/s KCS.

In October 2008, a fresh contract was awarded to M/s GT Poland for acquisition and processing of 275 Sq. Km of 3D seismic data with the scheduled completion of work by March 2010. Since completion of work was crucial for fulfillment of the committed Minimum Work Programme (MWP) and the contractor could not complete the work, the contract period was extended by four months upto July 2010. In this context, it is pertinent to mention that the validity of the block expired in May 2010. However, the Contractor could

²⁶ Contract No. 6107586

²⁷ replacement contract CDI 6205280 in Sadiya

acquire only 217.536 Sq. Km as against 275 Sq. Km of 3D seismic data upto the extended period (July 2010).

OIL requested (May 2010) DGH/MOPNG for granting extension of 42 months under special dispensation for continuing the exploratory work which was refused by MOPNG in September 2010. Due to non-completion of MWP, OIL had to pay an amount of ₹ 19.79 crore (OIL's PI share of 85 per cent) towards cost of unfinished work programme to MOPNG.

Audit observed that while finalizing the contract with M/s GT Poland, OIL had not framed any valid contract clause to withhold any amount/effect any recovery for non-completion of the contract work within the stipulated time from the Contractor. Though the contract had provision for imposing LD for delay in mobilization, there was no provision for imposing LD for delay in completion of acquisition and processing work. Further, as per clause 12.1 of Section I of the Contract it was mentioned that "contract shall be deemed to have been automatically terminated on completion of acquisition and processing or expiry of the duration of the contract or extension, if any, whichever is earlier". Thus, as per the above clause, the contract stood terminated even before the completion of work by the contractor.

Though OIL paid ₹ 19.79 crore towards cost of unfinished work programme to MOPNG, there was no such provision of imposing LD for delay in completion of acquisition and processing work in the contract to safeguard the interest of OIL.

OIL accepted the audit contention.

(iii) Expenditure on seismic survey without value addition

The block AA-ONN-2009/4 (Teok) in Assam covering an area of 84 Sq. Km was awarded to a consortium of OIL (50 per cent) and ONGC (50 per cent) in NELP-VIII where OIL was an operator. As per the MWP, the operator had to carry out mandatory 45 LKM and 201 LKM of 2D API and 84 Sq. Km of 3D API along with drilling of seven wells during Phase-I. OIL requested (October 2012) DGH for exemption from carrying out the mandatory 2D API as per clause 5.2²⁸ of PSC²⁹ (NELP-IX) as the entire block area of 84 Sq. Km would be covered under 3D seismic survey.

²⁸ If the Work Programme of 3D seismic API is equal in size to the contract area then the contractor shall be exempted from carrying out the 2D seismic Mandatory Work Programme

²⁹ Production Sharing Contract

The request of OIL, however, was turned down (January 2013) by DGH as the block was awarded under NELP-VIII. As per the NELP-VIII PSC provision, if OIL was not able to cover any part of the contract area by 2D seismic survey of grid size specified in the article, OIL should submit a proposal for substitution of the shortfall in the Mandatory Work Programme (MWP) to the Management Committee. OIL, however, did not submit any proposal for substitution of shortfall in MWP and carried out 2D API as per the committed MWP.

Audit observed that due to non-submission of proposal for substitution of shortfall in MWP, OIL, as an operator, incurred an expenditure of ₹ 29 crore towards 2D API without any value addition.

OIL stated (April 2015) that as part of the MWP commitments, OIL had committed 201 LKM of 2D seismic survey and 45 LKM of mandatory 2D survey besides other work programmes. As such it decided to combine the mandatory 246 LKM 2D seismic survey to complete the work in one go utilizing the same contract which resulted in time and cost savings. OIL did not propose for substitution of work programme in place of mandatory 2D seismic survey in the block.

The contention of OIL needs to be viewed against the fact that OIL itself proposed to DGH that there would be no value addition by doing 2D seismic survey when the entire block area was covered by 3D API.

As per PSC provision of NELP-VIII, OIL needs to submit fresh proposal to DGH for substitution of shortfall in 2D seismic survey as per MWP.

MOPNG accepted (July 2015) the audit observation.