

MINISTRY OF PETROLEUM AND NATURAL GAS

CHAPTER IV

Chennai Petroleum Corporation Limited

Capacity expansion and creation of infrastructure at Cauvery basin refinery

Highlights

The expansion of the Cauvery basin refinery was not commensurate with the projected deficit of products in the market zone served by the refinery.

(Para 4.8.2)

Delay in award of work resulted in transport of 475 Thousand Metric Tonne of crude from Chennai by incurring additional cost of Rs.6.75 crore.

(Para 4.9.1)

Undertaking re-survey of area consequent to the serious infirmities in the earlier geo-technical study resulted in additional expenditure of Rs.1.10 crore.

(Para 4.10.1)

The under utilisation of capacity resulted in excess consumption of steam and power to the extent of Rs.4.05 crore and over absorption of fixed overheads by Rs.16.59 crore.

(Para 4.11.1)

Transportation of crude in smaller parcels than the projected size of 15000 MT resulted in additional shipments leading to extra expenditure towards transportation by Rs.5.46 crore during 2004-05 to 2007-08.

(Para 4.11.2)

The Company incurred a loss of Rs.172 crore during 2004-05 and 2005-06 on sale of intermediate residual crude oil (RCO) as Low Sulphur Heavy Stock due to absence of secondary process unit. Had this RCO been transported to Chennai and then processed in the secondary process unit, the Company could have generated additional revenue of Rs.38.63 crore during 2005-06 and 2006-07.

(Para 4.11.4)

Summary of recommendations

The Company may:

1. *Prepare a suitable long-term plan to ensure continued viability of the refinery.*
2. *Pursue with the GOI for allocation of crude from Ravva oil fields to ensure the economic operation of the refinery.*
3. *Put in place a better contract management system in which the contractor's work is monitored on a day to day basis and disputes resolved in a timely manner.*
4. *Review the norms for consumption of utilities in view of continued reduction in thruput.*
5. *Examine the possibility of third party usage of the jetty to further augment the revenue.*
6. *Explore the possibility of either installing a secondary process unit or work out the economy in transporting the intermediate product to Manali refinery for further processing and getting additional margins.*

4.1. Introduction

Chennai Petroleum Corporation Limited (Company) was incorporated in December 1965 as Madras Refineries Limited under a formation agreement amongst Government of India (GOI), National Iranian Oil Company of Iran (NIOC) and AMOCO India Inc., of USA. The Company commissioned (June 1969) a refinery at Manali, Chennai with an installed capacity of 2.5 million metric tonnes *per annum* (MMTPA) which was augmented to 9.5 MMTPA (as on March 2008) over a period of time. The Company became a subsidiary of Indian Oil Corporation Limited (IOC), by virtue of IOC acquiring (March 2001) the GOI's shareholding of 51.81 *per cent*.

The Company commissioned another refinery at Cauvery basin (near Nagapattinam) in November 1993 at a total cost of Rs.196 crore for processing of low sulphur crude produced from the Cauvery basin (onshore) of Oil and Natural Gas Corporation Limited (ONGC). Based on the initial projections of ONGC, the capacity of the Cauvery basin refinery (CBR) was designed at 0.5 MMTPA which could be enhanced to 0.65 MMTPA at no extra cost. Some important and critical facilities were, however, required to be added for a capacity of 1.0 MMTPA.

In 1997, the GOI awarded the production sharing contract for PY-3 offshore well to PY-3 Consortium¹ and nominated the CBR as the recipient refinery for crude from PY-3. The production of crude at PY-3 wells was estimated at 0.4 MMTPA. The PY-3 crude had similar characteristics as the crude from ONGC on-shore wells and was ideally suited for processing at CBR. The offshore wells were located around 75 km to the north east of Nagapattinam. On the recommendations (1997) of the consultant, Engineers India Limited (EIL), the Company decided (June 1997) to construct an oil jetty and setting up of Marine Crude Receipt Facilities off Nagapattinam coast at an estimated cost of Rs.55 crore. The estimate was subsequently revised to Rs.96 crore (September 1999).

¹ *Hardy exploration & Production (India) Inc, ONGC, Tata Petrodyne Limited and Hindustan Oil Exploration Company Limited.*

Based on the crude availability from PY-3 and to effectively utilise capacity of the existing equipment, the Company decided (June 1997) to expand capacity of the CBR to 1.0 MMTPA. The expansion was completed (September 2002) at a cost of Rs.24.31 crore and the jetty was commissioned (March 2003) at a cost of Rs.91.58 crore.

The Management stated (October 2008) that the capacity was improved from 0.5 MMTPA to 1.0 MMTPA through a debottlenecking exercise and there was no major revamp or expansion of the refinery.

4.2 Scope of Audit

The performance audit reviewed the planning and implementation of the expansion of CBR along with the creation of infrastructure facilities (*viz.* jetty) and the performance/operation of refinery and jetty facilities during post-expansion period from April 2003 to March 2008. The Company increased the refining capacity from 0.5 to 1.0 MMTPA and created infrastructure to meet the requirement of petroleum products in the market zone served by CBR. The performance audit was undertaken to assess the extent of utilisation of the infrastructure created and to examine whether the intended objectives were achieved.

4.3. Audit objectives

Audit reviewed the planning and implementation of the expansion of the refinery and creation of infrastructure with the following objectives:

- Examine the need for capacity expansion;
- Examine whether the decision of capacity expansion/creation of infrastructure was preceded by a detailed study of related issues like availability of crude, expected demand, *etc.*;
- Examine the delays in execution of works; and
- Assess the adequacy and utilisation of the infrastructure created.

4.4. Audit criteria

Following criteria were mutually agreed with the Management in the Entry conference held in April 2008;

- Approved proposal for going in for expansion/debottlenecking and creation of infrastructure facilities;
- Approved investment proposal;
- Detailed project report for execution of the project;
- Crude oil sales agreement (COSA) for supply of crude;
- Industry standards/standards set by the Company for economy in operation; and
- Approved marketing arrangement with Oil Marketing Companies (OMC) for sale of products.

4.5. Audit methodology

Audit reviewed Detailed Project Report (DPR)/Feasibility report for the creation of infrastructure, Memorandum of Understanding (MOU) with ONGC/Crude oil supply

agreements (COSA) with, PY-3 Consortium for supply of crude, MOU/agreements with Oil Marketing Companies (OMC) for marketing the products and actual performance *vis-a-vis* the expected performance. Entry and exit discussions were also held with the Management.

4.6. Acknowledgement

The cooperation and assistance extended by the Management at all levels is acknowledged.

4.7. Audit findings

4.7.1. Physical performance

Performance of the refinery during the last five years ended 2007-08 was as shown below:

Table 4.1

Year	Actual Thruput (in tonnes)	Percentage of achievement	
		To target (700000 MT)	To capacity (1000000 MT)
2003-04	6,53,157	93.31	65.31
2004-05	7,42,239	106.03	74.22
2005-06	6,81,777	97.40	68.18
2006-07	6,17,994	88.28	61.80
2007-08	4,64,227	66.32	46.42

The targets were fixed based on the availability of crude. The low capacity utilisation was mainly due to non-availability of crude.

4.8. Need for expansion

4.8.1. Demand and supply of petroleum products

The Planning Commission estimated (Ninth Plan-1997-2002) the country's demand for petroleum products at 79.16 million tonnes as against the Eighth Plan (1992-97) projection of 81.19 million tonnes in 1996-97. The compounded annual growth rate (CAGR) during the Eighth Plan was 6.8 *per cent* against the projection of 6.9 *per cent* envisaged at the time of the formulation of Eighth Plan. The demand of petroleum products was estimated to grow at a CAGR of 5.77 *per cent* and was expected to be 104.80 million tonnes in the terminal year of the Ninth Plan. The Eighth Plan had emphasised the need for maximisation of domestic crude oil production. However, against a total planned production of 197.3 million tonnes during 1992-97, the crude oil production was only 154.28 million tonnes.

The refining capacity at the end of the Eighth Plan was 61.55 million tonnes. This was expected to go upto 113.95 million tonnes by the terminal year of the Ninth Plan. Taking into account the likely demand and the estimated indigenous crude oil production, the Ninth Plan envisaged specific attention, among other things, to creating refining capacity to meet at least 80 to 90 *per cent* of demand of petroleum products and balance to be met from imports.

Under the administered price mechanism regime, there was a system of assigning a refinery to meet the demand for petroleum products in a specified area/district. The Oil coordination committee determined (1994) that the market zone of the CBR would comprise of areas/district like Salem, Trichy West, Trichy East, Madurai, Dharmapurai, Neyveli, Thanjavur and Pondicherry. The deficit projected by the Committee (1994) for Motor Spirit (MS), High Speed Diesel (HSD) and Superior Kerosene Oil (SKO) was 1.426 MMT, 2.235 MMT, 3.137 MMT in 1995-96, 2001-02 and 2006-07 respectively. Based on the reduced demand, the projected demand, supply and deficit in the market zone of the CBR adopting CAGR of 5 per cent, however, was as follows:

Table 4.2*(Million Metric Tonnes)*

Year		HSD	MS	SKO	Total
1995-96	Demand	1.352	0.109	0.333	1.794
	Supply	0.244	0	0.124	0.368
	Deficit	1.108	0.109	0.209	1.426
2001-02	Demand	1.886	0.152	0.464	2.502
	Supply	0.244	0	0.124	0.368
	Deficit	1.642	0.152	0.340	2.134
2006-07	Demand	2.488	0.201	0.613	3.302
	Supply	0.244	0	0.124	0.368
	Deficit	2.244	0.201	0.489	2.934

4.8.2. Planning for expansion

Considering the revised CAGR as per the Ninth Plan, there was deficit in supply of petroleum products to the extent of 3.0 MMTPA. As such there was scope for expansion to that extent. However, the Company proposed to expand the capacity of the CBR from 0.5 MMTPA to 1.0 MMTPA. As such, the expansion planned was not commensurate with the deficit in supply of petroleum products to the market zone served by CBR as shown above.

The Management stated (October 2008) that since the projections in 1994, many changes had taken place after the year 2000 in logistics and market zone of CBR.

The Company did not come out with fresh data on the market zone of CBR either before going for expansion or subsequently.

The Company planned (June 1997) to increase the capacity from 0.5 to 1.0 MMTPA at an estimated cost of Rs.30 crore. It expected to earn net additional return on investment to the extent of Rs.14.41 crore *per annum* by sale of products. As the CBR was designed to process maximum of 0.65 MMTPA of crude oil, additional balancing equipments were added for a capacity of 1.0 MMTPA. The work awarded in June 1999 was completed in September 2002 at a cost of Rs.24.31 crore.

It was observed in Audit that the Company was aware that CBR could process only low sulphur crude and as there was no oil field with adequate reserves of low sulphur crude in India allocated to it, it had to resort to import, even to cater to the limited expansion to 1.0 MMTPA. Thus, the Company could have planned for expansion to meet the entire demand of its market zone.

The Management stated (October 2008) that in CBR, only the crude distillation facility was debottlenecked and the refinery at Manali was expanded in 2004 by three MMTPA

at a cost of Rs.2,280 crore. Full expansion in CBR to meet the entire demand was not considered as implementing similar expansion in CBR would involve an investment of Rs.5,000 crore and the Manali refinery met the product demand of market zone of CBR.

It was also observed in Audit that a private company had already initiated steps to set up a refinery with a capacity of six MMTPA in Cuddalore (100 km from the refinery) with plans to cater to the demand of refinery's market zone. On this unit's coming up, the refinery would face competition in its own economic supply zone. The competitive advantage of the private company would deprive CBR of its supply volumes, variety of products and also cost of these products. Thus, the Company is likely to lose its competitive advantage to another refinery.

The Management stated (October 2008) that it was confident that its combined refining capacity would help it to supply the products in market zone of CBR at a better competitive price than the private company. The CBR would, however, be at a disadvantageous position due to lack of secondary processing unit and larger volumes of the private company.

4.9. Planning for creation of infrastructure and sourcing of crude

4.9.1. Marine crude handling facilities

In view of low crude availability from ONGC, the Company moved (November 1996) additional crude from Chennai by road as a short term measure. The Company had considered setting up of marine crude handling facilities off Nagapattinam coast to receive crude from PY-3 and import crude to augment capacity utilisation of the CBR. Oil Coordination Committee (OCC) had also advised (March 1997) the Company to consider import of crude, in addition to PY-3 crude, by coastal movement and also to include pipelines for products. Further, the Company expected that the jetty could also be utilised by other companies, who had expressed interest, for import of their feedstock for which thruput charges would be receivable. Considering the high transportation cost, risk involved, uncertainty in gauge conversion by Railways, the Company nominated EIL as consultant to conduct a techno-economic study for bringing in offshore PY-3 crude. EIL suggested (February 1997) three options namely Fixed jetty (project cost Rs.55 crore), Multi buoy mooring (Rs.77 crore) and Single buoy mooring (Rs.130 crore). Of these, construction of jetty off Nagapattinam coast was considered the viable option and the Company decided (June 1997) to move crude oil through coastal tankers. It awarded the work in June 2000 to Afcons Limited for Rs.65.93 crore with a scheduled completion period of 15 months.

Audit observed that even after allowing time for tendering (six months) and scheduled completion (15 months) the Company delayed the award of work by 30 months since its decision (June 1997). This resulted in movement of 4,75,462 MT of crude by road (during April 1999 to September 2001) and consequent extra expenditure of Rs.6.75 crore.

The Management stated (October 2008) that though approval was accorded in June 1997, some more studies were carried out subsequently to finalise the proposal and there was no delay in decision making. However, the Company took 30 months to award a work involving a further completion period of 15 months after the decision was taken. Some of the studies mentioned were found to have been done even after award of work. The studies referred to by the Company should have preceded the decision.

4.9.2 Crude from ONGC (Cauvery basin)

The demand for petroleum products in the country in 1997-98 was 83.73 MMT which rose to 104.80 MMT during 2001-02. Against this, the domestic crude production by ONGC, Oil India Limited and other Private and Joint venture companies was only 34.42 MMT in 1997-98 which increased to 36.98 MMT in 2001-02. The country had to depend largely on imported crude to meet the demand for petroleum products.

The detailed feasibility report prepared (1989) by the Company for establishing the 0.5 MMTPA refinery at Cauvery Basin had envisaged that the available reserves of raw material (crude) to be sourced from ONGC's onshore wells would be 78 MMT by the year 1997. However, no commitment for any specific quantum of crude supply was obtained from ONGC.

Audit observed that the maximum crude oil received by the CBR in any year from ONGC was only 0.44 MMT (2001-02) and the receipt thereafter decreased from 0.39 MMT in 2002-03 to 0.30 MMT in 2007-08.

The Management stated (October 2008) that the decline in crude availability was taken up with ONGC on various occasions. ONGC intimated that 1.899 MMT of crude produced at Cauvery basin during 10th Plan period was supplied to CBR and this far exceeded the target of 1.216 MMT and that the supply would further decline during 11th plan period to 1.113 MMT. However, the Company did not take timely steps to obtain any data from ONGC on the probable balance of crude reserves and the longevity to plan the utilisation of CBR's full capacity or identify any other source for crude.

4.9.3 Crude from PY-3 offshore field

The Company entered into (September 2003) crude oil supply agreement (COSA) with PY-3 Consortium and during finalisation of the COSA, proven reserves of PY-3 offshore field were estimated (June 1997) by owners of the field between 2 MMT and 5.5 MMT and the reserves would last till the year 2008. As per the terms of COSA, the Consortium was required to furnish the production profile relating to probabilistic reserve estimates from time to time.

Audit observed that the Company did not obtain any data/estimates for proven reserves from the suppliers of crude, other than monthly production targets at periodical intervals. The supply from PY-3 on any given year had not reached the 0.4 MMT as envisaged for expansion. The Consortium could supply maximum of 0.287 MMT of crude during 2004-05 which came down to 0.162 MMT during 2007-08. The receipt of crude from different sources during last five years ended 31 March 2008 revealed that the CBR did not achieve the expanded capacity of one million metric tonnes in any year of operation.

Audit also observed that as at the time of expansion the availability of indigenous crude was estimated at 0.7 MMTPA (0.3+0.4) only, the Company had to either import the low sulphur crude or divert 0.3 MMTPA crude from its Manali refinery to CBR. But the Company did not import any crude and it diverted only 0.29 MMT of crude from Chennai during last five years ended March 2008. Further, the agreements entered into with the suppliers of crude (ONGC and Consortium of PY-3) did not provide for either any assured supply of crude or its longevity. The Company's efforts to get allocation of crude from nearby Ravva oil fields (indigenous crude having lower sulphur content

similar to crude from ONGC and PY-3) could not fructify (October 2008). Thus, CBR was forced to remain under utilised during 2003-04 to 2007-08.

The Management stated (October 2008) that the supplier of crude had been giving the estimates for proven reserves and monthly production targets. The Company, however, got the updated data on the estimated production only after being pointed out (July 2008) by Audit. Quantum of reserves available has still not been obtained by the Company.

Recommendation No 4.1

(i) The Company may prepare a suitable long-term plan to ensure continued viability of the refinery.

(ii) The Company may pursue with the GOI for allocation of crude from Ravva oil fields to ensure economic operation of the refinery.

4.10 Implementation of expansion

4.10.1. Geo-technical survey

The Company awarded (May 1998) the work of geo-technical studies for marine facilities to Dolphin Off-shore Enterprises, Mumbai (Dolphin) at a cost of Rs.1.59 crore. The work was completed in October 1998. Based on Dolphin's geo-technical analysis/survey reports, the Company awarded (June 2000) the work of construction of jetty and associated facilities to Afcons Infrastructure Limited (Contractor) for Rs.65.93 crore with a scheduled completion period of 15 months *i.e.* by September 2001. As the Contractor encountered hard soil strata throughout the jetty alignment during execution (August 2001) which indicated infirmities in the geo-technical soil studies/survey reports of Dolphin, the Company permitted them to re-survey the area on payment of Rs.1.10 crore and also execute additional works for a total value of Rs.4.10 crore.

Audit observed that the Company could collect Rs.15.85 lakh only as liquidated damages from Dolphin and could not recover Rs 1.10 crore incurred for conducting the survey again. Further, the Company had not obtained any professional liability insurance or any other security from Dolphin till completion of the work which would have compensated the loss suffered by the Company due to infirmities in the design study.

While confirming the facts, the Management stated (October 2008) that professional liability insurance would be obtained for similar contracts in future.

4.10.2. Delay in completion of jetty

The progress of work by the Contractor was slow due to delay in mobilising resources, site grading, fabrication and assembling of piling gantry, arrangements of casting yards, infirmities encountered in the geo-technical survey report and as a result additional works for steel pile driving were awarded to the same Contractor with extended completion schedule upto 15 September 2002. Beyond September 2002, extension of time was not granted and for any delay in completion of work the Contractor was to pay liquidated damages (LD) subject to a maximum of 10 *per cent.* The jetty was finally commissioned in March 2003. The Contractor raised certain claims due to reasons attributable to the Company. As the Company did not agree to such claims, the Contractor invoked the provisions of the Arbitration proceedings. As per the arbitration award, the Company paid the Contractor's additional claims to the extent of Rs.5.20 crore (Rs.1.10 crore for

again conducting the geo-technical survey and Rs.4.10 crore for additional works). The Company also recovered LD of Rs.2.10 crore.

Thus, delayed construction of jetty resulted in net extra expenditure of Rs.2.42 crore towards movement of 1,18,888 MT of crude from September 2002 to February 2003 by road from Chennai to CBR after taking into account the LD recovered.

The Management stated (October 2008) that the delay was attributable also to other factors like breakage of bridge, agitation by fishermen, *etc.* The Company accepted that the delay was also attributable to contractor due to slow progress of work but there was no enabling clause in the contract for recovery of additional expenditure incurred due to delay besides the liquidated damages which were limited to 10 *per cent* of the contract value.

Recommendation No. 4.2

The Company has to put in place a better contract management system in which the contractor's work is monitored on a day to day basis and disputes resolved in a timely manner.

4.11. Performance of the refinery after expansion

4.11.1. Consumption of utilities and absorption of fixed costs

Though capacity of CBR was increased to 1.0 MMTPA, the Company had fixed the annual target of thrupt at 7,00,000 MT (based on the crude availability) for the last five years ended 31 March 2008.

The design value (norm) for consumption of power and steam for processing per 1,000 MTs of crude was fixed as 5.26 MWhrs of power and 87.52 MT of steam respectively.

The table in the *Annexure - VIII* indicates the thrupt achieved, consumption of steam and power, and excess consumption of utilities in the refinery during the last four years ended 31 March 2008.

Audit observed that under utilisation of capacity resulted in excess consumption of steam (15,308 MT; value Rs.1.42 crore) and power (3,739.664 MWhrs; Rs.2.63 crore) during the last four years upto 31 March 2008.

The overheads like employee cost, repairs and maintenance, insurance, depreciation, *etc.* had to be incurred at a fixed level irrespective of the level of operations. In view of decreasing level of operations, the overheads were absorbed at higher rates resulting in over absorption by Rs.16.59 crore during 2005-06 to 2007-08. The Management confirmed the facts relating to over absorption of overheads and attributed (October 2008) the reduction in targets, which were further reduced to 0.4 MMT for 2008-09, due to non-availability of the crude.

4.11.2. Extra expenditure on transportation of crude

The jetty was constructed to berth vessels of 40000 DWT² capacities. Based on the design draft of 7.5 metre, it could receive crude parcels of 13,000 to 15,000 MTs. Two vessels belonging to Shipping Corporation of India (SCI) (MT Homi Bhaba and MT

² *Dead Weight Tonnage*

C.V.Raman) with a capacity of 40,000 DWT each were deployed in the transportation of crude oil from PY-3 to Nagapattinam jetty. The vessels were hired on time charter basis.

During the last five years ended March 2008, the refinery received 10,94,082 MT of crude from PY-3 field. This required 75 shipments. The Company, however, used 87 shipments to transport the same quantity which resulted in extra expenditure of Rs.5.46 crore on additional 12 shipments as shown below:

Table No. 4.3

Year	Quantity shipped (MT)	Number of shipment required. @ 15,000 MT	Actual number of shipment	Excess shipments	Extra expenditure (Rs. in lakh)
2003-04	177558.23	12	15	3	122.77
2004-05	288695.64	20	23	3	60.40
2005-06	221407.50	15	17	2	107.54
2006-07	243733.40	17	19	2	114.23
2007-08	162687.35	11	13	2	141.48
Total	1094082.12	75	87	12	546.42

The Management stated (October 2008) that the draft available was only 6.2 metre as against 7.5 metre envisaged. To accommodate this draft, the parcel size was restricted to 13,000 MT. The reply indicated that the Company did not assess the real field conditions before execution of the jetty project. This led to receipt of lower parcel size and extra shipments resulting in extra expenditure.

4.11.3. Foregoing of revenue on use of marine facilities by third parties

While approving the construction of marine facilities at Nagapattinam, the Company envisaged that the spare capacity in the jetty could be utilised for import/export of feed stock/petroleum products by various PSUs and private sector companies, which would bring an additional income of Rs.52.50 crore (at Rs.300 per MT) for the first five years of operation of the jetty and Rs.15 crore *per annum* thereafter at 100 *per cent* spare capacity utilisation.

Audit observed that while designing the jetty, the Company did not consider creating facilities for import/export of finished products. The jetty was not utilised by third parties resulting in non-accrual of expected revenue of Rs.52.50 crore. There was no record to show that the Company had made efforts for third party usage of the jetty to further augment the revenue. The naphtha produced by the refinery had to be moved to Tuticorin by road which resulted in under recovery on account of transportation to the extent of Rs.9.04 crore during the last five years ended 31 March 2008.

Against an expected utilisation of 3,120 hours per year, the Company utilised the jetty for 2,706 hours only during the last five years ended 31 March 2008.

The Management, while confirming the facts, stated (October 2008) that provision was made for putting up loading/unloading arms at jetty platform and pipelines in the approach trestle. Further, product pipelines were laid in November 2007. A private company had constructed a jetty on their own. An offer from a private party for import of palm oil was not considered due to poor revenue realisation.

The viability of the project was estimated considering the revenue that could accrue on third party usage. As the Company did not obtain any commitment from prospective

users before creating necessary facilities, one of the prospective users had commissioned its own jetty nearby and consequently the Company's jetty remained underutilised leading to non-realisation of expected revenue.

4.11.4. Absence of secondary process unit

The CBR did not have a secondary process unit, to extract value added products such as MS, HSD, FO and LPG, etc. from the intermediate product *i.e.*, reduced crude oil (RCO) to increase the operating margin. In absence of this unit, the Company was selling RCO as low sulphur heavy stock (LSHS). During 2006-07, the CBR transferred 3,672 MT of RCO to fluidised catalyst cracking unit (FCCU) at Manali for further processing to get value added products.

Audit observed that by not transferring the entire quantity of RCO to Manali refinery and by selling it as LSHS, the refinery suffered a loss of Rs.172.23 crore during 2004-05 and 2005-06 (as there was negative margin in the price of LSHS) and had foregone revenue of Rs.98.73 crore during the period 2004-05 to 2006-07.

The Management stated (October 2008) that it had committed to IOC to supply LSHS to its customers and the same could not be supplied from Manali Refinery. As the thruput in FCCU (Manali) was saturated, transportation of RCO to Manali could not be continued. Further, IOC and the Company decided to reduce the LSHS commitment to customers and the movement of LSHS was being streamlined.

However, the Company need not commit supplies which lead to negative margin. As receipt of LSHS from the process could not be avoided and would be recurring, the Company should have explored the possibility of its economical disposal. Further, taking into account the combined spare capacity available in the secondary processing units (FCCU and OHCU³) at Manali, the Company would have earned a revenue of Rs.38.63 crore by processing 0.12 MMT of RCO at Manali during 2005-06 and 2006-07.

Recommendation No .4.3

- (i) The Company may review the norms for consumption of utilities in view of continued reduction in thruput.*
- (ii) The Company may examine the possibility of allowing third party usage of the jetty to further augment the revenue.*
- (iii) The Company may explore the possibility of either installing a secondary process unit or work out the economics of transporting the intermediate product to Manali refinery for further processing and getting additional margins.*

4.12. Challenges for future

4.12.1. Statutory requirement relating to Auto fuel policy

The Government of India had formulated (October 2003) the Auto Fuel Policy which prescribes the emission norms for all vehicles. According to the policy, the entire country is required to adopt Bharat Stage II emission norms from April 2005 and Euro III or equivalent emission norms from 1 April 2010. For cities like Delhi/NCR, Mumbai, Chennai, Kolkata, Hyderabad, Bangalore, Pune, Ahmedabad, Surat, Kanpur and Agra,

³ *Once Through Hydro-cracker Unit.*

the emission norms fixed were Euro III or equivalent by 1 April 2005 and Euro IV or equivalent by 1 April 2010.

It was noticed that HSD constitutes more than 40 *per cent* of the production of the refinery. To upgrade the HSD to Euro III norms, the refinery is required to set up suitable processing facilities or the product had to be transported to Manali Refinery for further processing which would involve loss of margin/under-recovery of costs. If the HSD was not upgraded to Euro III compliance, the same has to be sold only to industrial users for which the Company has to approach IOC (marketing company) to market the product at a discounted rate. This would result in pushing up under-recoveries. The Company, for its Manali refinery, had approved (August 2006) an investment proposal of Rs.1,665.44 crore to upgrade the HSD and MS to Euro IV norm. It had not, however, made any strategic investment decision so far (August 2008) to install suitable processing facilities at CBR or to transport the HSD to Manali refinery for further processing to comply with Euro III norms. Thus, CBR faces serious challenges to meet the new emission norms beyond 2010.

4.13 Conclusion

The operations of the Cauvery basin refinery continue with inadequate supply of crude and under utilisation of infrastructure. Unless concerted efforts are made to get crude from other fields for achieving the economics of production through larger scale of operations, variety of products with low cost, *etc.*, the viability of the refinery in the long run would be uncertain. The CBR would not only suffer cost disadvantage by low level operation but also face competition from a private company which is setting up a 6.0 MMTPA refinery within 100 km radius. Moreover, the CBR has not prepared itself to meet the Euro III emission norms to be applicable from April 2010.

The matter was reported to the Ministry in January 2009; reply was awaited.