



THIRTEENTH KERALA LEGISLATIVE ASSEMBLY

**COMMITTEE
ON
PUBLIC UNDERTAKINGS
(2014-2016)**

FORTY NINTH REPORT
(Presented on 30th June, 2014)

SECRETARIAT OF THE KERALA LEGISLATURE
THIRUVANANTHAPURAM
2014

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on

**The Travancore-Cochin Chemicals Limited based on the Report of the
Comptroller and Auditor General of India for the year ended
31st March, 2003 (Commercial)**

1081/2014.

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INTRODUCTION

I, the Chairman, Committee on Public Undertakings 2014-2016 having been authorised by the Committee to present the Report on their behalf, present this Forty Ninth Report on The Travancore-Cochin Chemicals Limited based on the Reports of the Comptroller and Auditor General of India for the year ended 31st March, 2003 (Commercial) relating to the Government of Kerala.

The Report of the Comptroller and Auditor General of India for the year ended on 31st March, 2003, was laid on the Table of the House on 28-6-2004. The consideration of the audit paragraphs included in this report and the examination of the departmental witness in connection thereto was made by the Committee on Public Undertakings constituted for the years 2011-2014.

This report was considered and approved by the Committee at the meeting held on 7-5-2014.

The Committee place on record their appreciation of the assistance rendered to them by the Accountant General (Audit), Kerala in the examination of the Audit Paragraphs included in this Report.

The Committee wish to express their thanks to the officials of the Industries Department of the Secretariat and The Travancore-Cochin Chemicals Limited for placing before them the materials and information they wanted in connection with the examination of the subject. They also wish to thank in particular the Secretaries to government, Industries and Finance Department and the officials of The Travancore-Cochin Chemicals Limited who appeared for evidence and assisted the Committee by placing their considered views before the Committee.

Thiruvananthapuram,
30th June, 2014.

K. N. A. KHADER,
Chairman,
Committee on Public Undertakings.

REPORT
ON
THE TRAVANCORE-COCHIN CHEMICALS LIMITED

AUDIT PARAGRAPH

2.1.1 The Travancore-Cochin Chemicals Limited was incorporated in November 1951, with the main object of manufacture and sale of caustic soda, other allied chemicals and by-products. The Company installed (December 1953) a caustic soda plant and commenced commercial production in January 1954. As of March 1997 the Company had two mercury process plants viz. the Krebs plant and Udhe plant, of which the Krebs plant was decommissioned in April 1997. After capacity expansion by installing (June 1997) a new membrane cell plant and further enhancement (December 2002) in capacity of the plant by 25 per cent, the total installed capacity as on 31st March, 2003 was 74250 MT per annum of caustic soda and 65785 MT per annum of chlorine products.

2.1.2 As on 31st March, 2003, the management of the Company was vested in a Board of Directors (Board) comprising four Government nominees (including the Managing Director), a representative from Kerala State Industrial Development Corporation Limited and three independent directors and one additional director under paragraph 77 (b) of Articles of Association of the Company. The Company was having an Executive Director (Technical) during October 1996 to April 2001, who also held the charge of Managing Director during June 1998 to May 1999.

The Managing Director is the Chief Executive of the Company and is assisted by a General Manager, Deputy General Manager (Works), Deputy General Manager (Materials), Secretary-cum-Internal Auditor and Financial Controller.

2.1.3 The working of the Company was last reviewed and included in the Report of the Comptroller and Auditor General of India (Commercial) for the year 1993-94. The review was discussed by Committee on Public Undertakings during July 1998 and recommendations thereto were included in its 29th Report. The present review conducted during the period December 2002 to May 2003 covers the activities of the Company for the period 1997-1998 to 2001-2002.

The draft review was discussed by Audit Review Committee for State Public Sector Enterprises in its meeting held on 15th September, 2003. In the meeting, the State Government was represented by the Additional Secretary, Industries Department, Government of Kerala, and the Company by its Managing Director.

2.1.4 As against the authorised share capital of ₹ 50 crore comprising 325 lakh equity shares of ₹ 10 each and 17.50 lakh preferential shares of ₹ 100 each, the paid up capital of the Company as on 31st March, 2003 was ₹ 21.31 crore

contributed by State Government (₹ 16.91 crore), the Fertilizers and Chemicals Travancore Limited (₹ 0.68 crore), Kerala State Industrial Development Corporation Limited (₹ 3.52 crore) and Sanmar Properties and Investments Limited (₹ 0.20 crore).

2.1.5 The borrowings of the Company as at the end of 31st March, 2003 was ₹ 48.59 crore comprising term loans from scheduled banks (₹ 0.83 crore) and Kerala Industrial Revitalisation Fund Board (KIRFB) (₹ 47.76 crore), mainly raised for financing the implementation and settlement of loan pertaining to membrane cell project.

The Company had defaulted (October 2002) repayment of principal amount of KIRFB loan due to liquidity problems.

2.1.6 Annexures 11 and 12 summarises the financial position and working results of the company under broad headings as on 31st March for each of the five years up to 2002-03. Analysis of financial position indicated that:

Reserves and surplus were completely wiped off in 1999-2000 on account of heavy losses incurred after commissioning of the membrane cell project in June 1997.

The Company's net worth was negative since 2000-01, as the investment made in the membrane cell project did not yield the expected returns.

2.1.7 Analysis of working results indicated that:

Though the sale turnover recorded increase since 1998-99, there was no corresponding reduction in operating loss due to sale of the increased production from excessive capacity utilisation, at prices below cost in view of poor market demand. The increase in cost of power and fuel charges due to excessive consumption also contributed to poor performance.

The fall in the net loss during 2001-02 was due to write back of ₹ 4.29 crore towards interest/surcharge on dues to Kerala State Electricity Board provided during earlier years, on the basis of remission allowed by Government.

2.1.8 As part of its financial assistance of ₹ 49.63 crore, Kerala Industrial Revitalisation Fund Board (KIRFB) released the last two instalments of ₹ 2.65 crore during January (₹ 1.32 crore) and April 2002 (₹ 1.33 crore). The Company's bankers, viz. State Bank of Travancore kept the amount in fixed deposits to meet the commitment of letter of credit (LC). The terms of LC stipulated deposit of margin money of 10 per cent each equivalent to ₹ 60 lakh only. The balance amount of ₹ 2.05 crore could had been transferred to the Company's cash credit account. Unnecessary retention of the amount in fixed

deposit caused loss of interest of ₹ 15.78 lakh for the period January to December 2002 at the differential rate of 7 to 7.75 per cent between cash credit (16.5 per cent) and fixed deposit (8.75/9.50 per cent).

2.1.9 During the five years ended 31st March, 2002, the Company enhanced the production capacity by installing a membrane cell plant and additional electrolysers. The Company also replaced caustic concentration and fusion plant and set-up a secondary brine purification plant and salt upgradation plant as part of modernisation. The capital investment on these modernisation projects amounted to ₹ 103.06 crore.

2.1.10 The old mercury plant was commissioned in 1967 with estimated life of maximum 30 years. Though the need for replacing the mercury plant by 1997 was known, the Company did not plan resource mobilisation in advance. The Company devised a financing pattern of ₹ 35 crore by way of public issue of shares, ₹ 12.76 crore from internal accruals and ₹ 20 crore by way of term loans for the revised (June 1993) project cost of membrane cell plant of ₹ 67.76 crore.

Even though equity participation from Government was not envisaged for the project and funds from public issue were not forthcoming, the Company did not make any attempt to minimise the initial investment and carry-out modernisation in a phased manner by spreading over the replacement cost. The Company also did not revive the initial proposal to make use of the rectifier and other auxiliary plants of the 'Krebs unit' for the new membrane cell plant which would have saved fresh investment of about ₹ 5 crore. The proposal to prolong the use of the then existing CCF Plant, with certain modification, so as to defer the investment of about ₹ 18 crore on the new CCF Plant, was also not given due consideration. As ultimately realised by the Company, the investment of ₹ 3.98 crore on the salt upgradation plant was altogether wasteful as discussed in paragraph 2.1.22 infra.

Redefining the capital investment priorities was all the more necessary as the Company became aware of adverse market situation, arising from creation of excess capacity. The avoidable losses and extra expenditure during implementation of the project are discussed in succeeding paragraphs.

2.1.11 The Company had two mercury cell plants, comprising 'Krebs plant' with production capacity of 60 tonnes per day (TPD), commissioned in 1967 and 'Udhe plant' with a capacity of 100 TPD, commissioned in 1975. As the two plants and their technology were relatively old, the Company formulated a technological upgradation-cum-expansion project during 1993-94, to install a plant using membrane cell technology, with a capacity to produce 100 TPD of caustic soda. The project report highlighted the membrane cell technology as a pollution free modern technology with potential saving of 1200 kWh of power per tonne of caustic soda produced, low maintenance cost, etc.

The Company imported (1996) the plant from Kanemastu Corporation, Japan at a cost of ₹ 34 crore and commissioned it in June 1997 against the target of April 1996. The actual expenditure on setting-up the new plant amounted to ₹ 70.41 crore against the projected cost of ₹ 67.76 crore.

2.1.12 Audit observed that none of the significant advantages of the technological upgradation projected by the Company were actually forthcoming except for pollution control for which cost implication was negligible. As regards the energy saving of 1200 KWH/MT anticipated by the company as the major advantage with the new technology, the actual net saving in energy after implementation of the project was only 926.9 KWH/MT on an average during the five years up to 2001-02 and the total savings on that account amounted to ₹ 30.09 crore against the projected savings of ₹ 39.29 crore.

While the project report considered the power efficiency of the plant as stable, the plant recorded declining trends in power efficiency on actual working. Further, there was excess consumption of salt and barium carbonate, as the plant required brine of extra purity level than that for mercury plant. This additional cost was not considered in the project proposal. While working out the cost effectiveness of the project in the DPR, the additional cost of ₹ 4 crore for changing the membranes after every three years was not considered and therefore, the presumption made in the DPR about lower maintenance cost, was not based on facts. Total additional cost of operation when compared with mercury plant, for the five years up to 2001-02 worked out to ₹ 22 crore. The actual net savings in cost during the first five years of operation of the plant amounted to ₹ 8.09 crore only as against ₹ 39.29 crore projected.

2.1.13 After implementation of the membrane cell project the Company could not generate additional revenue as anticipated, which totally upset the financial forecast made in the project. While the additional commitment towards interest on borrowed funds was around ₹ 8 crore per annum, the actual additional contribution fetched by the new project was only ₹ 1.62 crore per annum.

Management stated (April 2003) that the performance of membrane cell plant was very good for first three years. The financial problems of the Company prohibited it from timely replacement of membranes after three years as required. The membranes were replaced only in the fifth year. The plant also failed in giving best results as the quality of salt fed to it could not be maintained. The reply is not tenable since the Company could have avoided other injudicious capital investment decisions like CCF plant, salt upgradation plant, etc., referred to in paragraphs 2.1.17 and 2.1.20 infra and utilised the funds for replacement of membranes. As the quality of salt fed to the plant undergoes primary and secondary purification before input, the quality of brine was always being ensured.

The management also stated that the expansion project was taken up in anticipation of public issue of shares and equity participation from Government, and that it would not have gone for such a massive investment had it foreseen that the entire funding would ultimately have to be made out of borrowed funds. This indicates that the presumptions in DPR regarding funding for the project were unrealistic in the absence of any assurance/commitment from the Government towards equity participation.

2.1.14 The membrane cell plant and its supporting systems had a provision for capacity enhancement by 25 per cent on adding four more electrolyzers to the then existing 16 electrolyzers. The Company decided (June 1999) to go for this capacity enhancement on the ground of savings in power consumption inherent in membrane cell technology by shifting the production from mercury plant to expanded membrane plant.

For technical reasons the Company preferred to procure the additional electrolyzers from the suppliers of original plant and placed (March 2000) a letter of intent for supply before November 2000. Due to financial constraints the electrolyzers were procured only in October 2002 utilising borrowed funds carrying interest @ 12 per cent at a landed cost of ₹ 6.96 crore and commissioned in December 2002.

2.1.15 It was noticed in Audit that the enhancement in capacity was not justifiable for the following reasons:

The market situation of caustic soda that existed after commissioning of the membrane cell plant and financial crunch faced by the Company did not justify any addition to the capacity. Further, the then existing capacity was not being utilised fully on account of lower market demand. The only justification advanced for capacity enhancement was the anticipated savings in cost of power. However, no fresh cost-benefit analysis was made by the Company before taking the investment decision although the required data was available from the actual working of the membrane cell plant since June 1997. As discussed in paragraph 2.1.12, there were other items of production cost which were in excess of that for the mercury plant, and therefore the net savings in production cost per MT ranged between ₹ 83 and ₹ 335 only during 1999-2002, which was hardly sufficient to cover the financing cost of ₹ 1018 per MT of production. Thus, the investment of ₹ 6.96 crore on capacity enhancement proved to be non-productive.

2.1.16 As part of the membrane cell project, the Company procured from Asea Brown Boveri Limited (ABB) Bangalore, a rectifier costing ₹ 3.65 crore which was commissioned in June 1997. ABB had guaranteed efficiency of 98.2 per cent for the rectifier as against 97.58 per cent offered by NGEF, the next lowest

tenderer. The Company had estimated a financial gain of ₹ 8 lakh per annum on account of the better efficiency of ABB rectifier over NGEF. The agreement with ABB had provided for levy of penalty @ ₹ 16,000 per kW, if the total loss in the transformer and rectifier exceeded 236.25 kW. Audit observed that the efficiency actually recorded by the new rectifier was in the range of 95.53 to 96 per cent only and the loss of energy on this account for the five years ended 31st March, 2002 worked out to 87.85 lakh units valued at ₹ 1.90 crore.

Amount of penalty recoverable for lower power efficiency was not ascertainable in the absence of complete details regarding power consumption of different parts of transformer and rectifier equipment. There were no reasons on record for not recovering the penalty for lower efficiency.

2.1.17 The Company decided (August 1995) to replace the then existing caustic concentration and fusion plant at an estimated cost of ₹ 18 crore. The new plant was proposed on the ground that the installed capacity of caustic soda lye would go up to 260 TPD against existing 160 TPD on commissioning of the new membrane cell plant. This would consequently necessitate heavy repairs to existing 27 year old plant so as to meet the increased need for flaking.

Out of three offers received (December 1995) against the tender, the company selected (January 1996) Kanemastu Corporation, the suppliers of membrane plant, who quoted for the CCF plant manufactured by Bertrams Limited, Switzerland, the suppliers of the old CCF Plant. The selection was made on ground of technical supremacy. The major shipments of the plant were made by the suppliers during April-May 1997 and the plant with a rated capacity of 33000 MT per annum was commissioned in February 1999 at a total cost of ₹ 20.09 crore.

Ever since commissioning the performance of the plant was not satisfactory and resulted in losses to the Company as discussed below:

2.1.18 The various parts of the plant like burner, stitching machine, belt conveyor, pressure valve, etc., were having inherent defects and these items were accepted (February 1999) by the Company after the guaranteed test run on the condition that the necessary modifications would be carried out to rectify the deficiencies. However, there were no records to confirm the rectification/modifications, if any, carried out by the suppliers. Final acceptance of the plant was also not seen documented.

The plant was warranted for trouble free performance for 12 months from the date of commissioning or 18 months from the date of last major shipment of machinery whichever was earlier. Guarantee test runs were to be conducted within

six months from the date of completion of erection (January 1999) or 20 months from the date of last shipment (May 1997) whichever was earlier. While there was delay in completion of work due to design/drawing changes by the suppliers, the Company did not insist on corresponding extension of period of performance test run, despite earlier experience (1972) of supply of defective concentrator elements by the same supplier.

Due to delay in completion of work by the supplier, the guarantee test runs were conducted (February 1999) after expiry of the guarantee period (December 1998). As against the expected life of two and a half years, five concentrator elements were rendered defective within 5 to 17 months. These elements should have been replaced free of cost but the suppliers charged 50 per cent of the cost since the guarantee period expired. On account of the failure in getting the guarantee period extended, the Company had to incur extra expenditure of ₹ 80 lakh.

After commissioning of the plant there were several defects leading to technical snags due to which the plant could run only at 80 per cent capacity as against the guaranteed 95 per cent. As per the contract the supplier was liable to compensate the Company @ 40,000 Swiss Francs (SFr) for every one per cent fall in capacity subject to a maximum of 4.10 lakh SFr. Though the supplier was responsible for the delay arising from design/drawing defects the Company did not insist on extension of the guarantee period. Thus, the failure of the Company to get the guarantee period extended corresponding to the delay in installation arising from design/drawing defects, resulted in loss of ₹ 1.27 crore @ ₹ 30.94 per Swiss Francs (SFr) prevalent in January 1996. Apart from this, the flaker drum of the plant developed cracks and became unserviceable, within a span of 17 months after installation. This had to be ultimately repaired by the Company at a cost of ₹ 11 lakh. Thus, the plant which was stated to have technical supremacy at the time of vendor selection proved to have several inherent manufacturing defects and also did not provide the guaranteed performance.

Against the installed capacity of 33000 MT per annum, the actual utilisation till 2001-02 ranged between 46 and 59 per cent only. Since the sales policy envisages flaking of only surplus quantity of lye, more than 40 per cent of the capacity was rendered surplus.

2.1.19 During production of caustic soda under the mercury as well as the membrane process, hydrogen was being produced as a co-product. The hydrogen so produced could be either bottled and sold or used for production of hydrochloric acid (HCl) and as fuel in the boilers so as to reduce the consumption of furnace oil. For using hydrogen as fuel, necessary modification to the existing boiler had

to be made for hydrogen firing system which involved additional capital investment of ₹ 66 lakh. It was noticed in Audit that the Company had not used the hydrogen available as fuel during the three years ended 31st March, 2000 and surplus quantity of the co-product available after production of HCl was wasted. The entire heating requirement of boilers was done by using furnace oil and part consumption of hydrogen was started only from 2000-01 onwards, when the new CCF plant was commissioned (February 1999), since one of the boilers had hydrogen firing system. Failure of the Company to use the available hydrogen as fuel and alternate consumption of furnace oil during the five years ended 31st March, 2002 resulted in a loss of ₹ 7.02 crore.

Management stated (April 2003) that procurement of new boiler with hydrogen firing system was postponed for want of finance. The reply is not tenable since the procurement and installation of new boiler involved an investment of only ₹ 2 crore. Alternatively, the existing (old) boiler could also have been modified for the use of hydrogen firing, at a cost of ₹ 66 lakh which was far below the loss incurred (₹ 7.02 crore) in the absence of firing system. No concrete efforts were also made by the Company to raise finance for procurement of a new boiler.

2.1.20 The Company, decided (March 1995) to install a salt upgradation plant of 40 tonnes per hour (TPH) along with the membrane cell project, foreseeing that the upgraded salt could be used for both the plants thereby effecting considerable savings in brine purification cost. Global tenders were invited (May 1995) for supply of know-how, basic engineering, plant and machinery including erection/commissioning of a 40 TPH plant. Order was placed (October 1995) on Krebs & Company Limited, Zurich (KCL) for ₹ 4.75 crore. KCL supplied the major items of plant costing ₹ 1.40 crore in August 1996. The project involved installation of certain other allied items of equipment, procurement of which was arranged by the Company indigenously through the Indian associates of the principal contractor (KCL) who were also solely responsible for the performance of the entire plant as guaranteed.

2.1.21 There was failure on the part of the Company in co-ordinating the various activities of the project. As per the contract, the plant was required to be installed within a period of six months from June 1996 to make it eligible of performance guarantee benefits. However, Company could install it only after two years in July 1998. The contracted performance guarantee period as well as equipment warranty had therefore expired in January 1998. The performance test was conducted in August 1998.

2.1.22 Though the plant was ready for use in August 1998, the Company started operating the plant only from April 2001. The plant was shutdown in September 2001 after working for only 61 days, during which 11650 MT of salt only was upgraded. Reasons for not operating the plant during August 1998 to March 2001 and its subsequent shutdown were not on record.

It was noticed in Audit that the plant was not giving satisfactory performance ever since its installation. A test check of its operational data for June 2001, disclosed that the centrifuge (the major equipment in the plant) used to stop intermittently and technical defects were reported almost everyday of its operation. Calcium removal by the plant was also less efficient, and hence it was not always capable of upgrading the salt to the purity standards required in membrane cell. During trial run (August 1999) of the plant, the process loss was as high as 13.5 per cent as against 2 to 3 per cent envisaged, due to which the plant could not be operated on a commercial basis. The Company could not penalise the suppliers of the plant for the defects since the plant was commissioned after expiry of guarantee period. Thus, the investment of ₹ 3.98 crore on setting up the salt upgradation plant proved to be wasteful.

The management stated (May 2003) that the quality of raw salt available was inferior at the time of taking the decision to set-up the plant and availability of good quality salt from Gujarat as well as Tamil Nadu since October 2001 was also the reason for non-operation of the plant since October 2001. The reply is not tenable since good quality salt was available in the market ever since the plant was ready for operation (August 1998) and the Company had in fact purchased superior quality salt from Gujarat in August 1999 involving extra expenditure of ₹ 34.13 lakh. This indicated that the shutdown of the plant (April 2001) was necessitated due to uneconomic operation of the plant arising from inherent technical defects and not due to subsequent availability of good quality salt in the market.

2.1.23 The waste chlorine disposal plant attached to membrane cell plant was having chlorine load required to produce a maximum of 10000 MT of sodium hypochlorite per annum. Even then, the new sodium hypochlorite plant installed during 2001-02 was designed at a higher capacity, so as to produce 15000 MT per annum leading to excess capacity of 5000 MT. The maximum capacity utilisation during the working of this plant for the two years up to 2002-03 was 55 per cent only. It was also noticed that the installed capacity of the plant projected in the original Project Report was only 12000 MT per annum at an investment of ₹ 1 crore which was unnecessarily enhanced to 15000 MT per annum resulting in escalation of cost to ₹ 1.38 crore.

2.1.24 Based on a proposal made (September 1991) by Regional Research Laboratory (RRL) for setting-up a synthetic rutile project using a non-pollutant and non-corrosive technology, the Company signed (March 1993) with RRL and Department of Scientific and Industrial Research (DSIR), a Memorandum of Understanding for setting-up a pilot plant at a cost of ₹ 1.93 crore. The pilot plant was commissioned (March 1995) at a total cost of ₹ 1.96 crore which was shared by the Company (₹ 1.28 crore) and DSIR (₹ 68 lakh).

Thereupon, the Company engaged (March 1996) MECON to prepare a project report. The cost of the project as per the preliminary project report was ₹ 79.52 crore which was revised (February 1999) to ₹ 89.62 crore and to ₹ 93.36 crore in January 2001. The Company could not finance the project due to fund constraint and the efforts made by it to implement the project with the participation of Government, Kerala State Industrial Development Corporation Limited, Kerala Minerals and Metals Limited, Technology Development Board (TDB), etc., did not succeed.

Though the Company informed the Government of their intention to permit National Research Development Corporation (NRDC)/RRL to sell the technology to other interested parties, sanction of Government had not been received so far (September 2003). The investment of ₹ 1.28 crore made by the Company in the pilot project had been lying idle from March 1995 leading to interest loss of ₹ 1.27 crore for the period up to July 2003 at the borrowing rate of 12 per cent per annum.

The Company, however, maintained (March 2003) that in view of high cost of imported technology, the sale of technology would materialise and the royalty receivable by the Company as per MOU would be adequate to recover cost of setting up the pilot plant. However, the transfer of technology had not materialised so far (September 2003).

2.1.25 As on 31st March 2002, the Company had two process plants of 100 tonnes per day (TPD) each under the mercury and membrane process. While the first process had the disadvantage of mercury pollution, the latter process was comparatively pollution-free.

The main product of the Company was caustic soda in the form of lye and flakes which contributed to about 70 per cent of the turnover. The by-products were chlorine, hydrochloric acid, hydrogen and sodium hypochlorite.

2.1.26 The Company had been fixing monthly targets for production of each of the main products. Basis of fixation of targets was not on record. It was noticed that the production levels were being fixed without considering market

demand and the products were sold in the market at prices fixed on a discriminatory basis with a view to liquidate the production, involving huge losses as discussed in succeeding paragraphs. There was absence of a system of budgetary control on production.

2.1.27 The mercury and membrane plant of the Company had a capacity of 33000 tonnes per annum each during the five years ended 31st March, 2002. The actual plant-wise gross production, percentage of utilisation there against, self consumption during this period were as given in Annexure A.

Audit scrutiny of the production performance revealed the following :

2.1.28 There was captive consumption of caustic soda in both the plants, for brine purification as well as effluent treatment. As observed in the periodical report on production for the industry published by Alkali Manufacturers Association of India (AMAI), several units recorded internal consumption around one per cent in respect of mercury plant and around 2 to 3 per cent for membrane plant. As against this, the percentage of the Company's captive consumption to gross production was very high and varied between 3.68 and 4.83 in respect of mercury plant and 4.61 and 6.70 for membrane plant. The extra cost incurred on self consumption for the five years ended 31st March, 2002 worked out to ₹ 8.66 crore.

The Company admitted (March 2003) the above fact and attributed the excess consumption to:

Quality problems with the salt procured from distant places ;

Frequent shutdown of plants due to unsteady power supply ; and

Change in methods of effluent treatment from unit to unit.

It was noticed in Audit that the company had been procuring high quality salt from Gujarat since 1998-99 and there were no reports on unsteady power supply as per records of the Company.

2.1.29 Hydrochloric acid (HCl) was being produced by using chlorine and hydrogen which were by-products of caustic soda. The commercial grade acid so produced was having concentration (acid content) between 30 and 32 per cent. As per the chemical standards, one MT of concentrated HCl (100 per cent HCl) contained 972.565 kg. of chlorine and 27.435 kg. of hydrogen.

During 1997-2002 the Company utilised 129067 MT of chlorine and accounted the same quantity (129067 MT) as production of HCl (100 per cent). As chlorine content alone was taken into account and the weight of hydrogen not reckoned, the actual quantity of acid produced remained short-accounted to the

extent of 3641 MT equivalent to 11378 MT of commercial grade, resulting in loss of ₹ 1.64 crore. The Company could not offer any convincing reason for short accounting of hydrochloric acid.

2.1.30 The caustic soda lye produced in mercury plant was having a concentration of 47-50 per cent whereas that in membrane plant contained 32 per cent only. Due to this the lye produced in membrane plant was being enriched in CCF plant at an average extra cost of ₹ 634 per MT on fuel alone.

It was noticed in Audit that Fertilizers and Chemicals Travancore Limited (FACT), a regular customer, who required caustic soda lye of 40 per cent concentration, was supplied lye of 48 per cent concentration.

Thus, the Company unnecessarily incurred expenditure on enrichment of caustic soda. The cost of enrichment could have been avoided by mixing the caustic soda produced in the mercury plant (of 48 per cent concentration) and membrane plant (of 32 per cent concentration) at negligible cost. The avoidable extra cost of production @ ₹ 634 per MT on supply of 39073 MT of enriched caustic soda worked out to ₹ 2.48 crore.

The management stated (March 2003) that it had not made arrangements for mixing lye of 32 and 48 per cent concentration produced in membrane and mercury plant to get 40 per cent lye. Further, it also required continued stirring and also separate storage. The reply is not tenable since the Company should have made arrangements for mixing of lye considering the huge savings in cost.

2.1.31 The Company had been using barium carbonate, sodium carbonate, etc., for reduction of calcium and magnesium in brine solution, over and above the captive usage of caustic soda for the same purpose. The cost of barium carbonate and sodium carbonate consumed during the five years up to 2001-02 amounted to ₹ 7.71 crore.

Technical opinion existed to the effect that bubbling carbon dioxide through brine was a more efficient and cost effective method of crystallizing out calcium and magnesium solids. In this process the reaction was also more complete as carbon dioxide dissolved in brine controlled PH value. Further, the calcium level would be brought to about 1 ppm by carbon dioxide in place of 15 ppm presently obtained. Since carbon dioxide was easily available from FACT, a central PSU situated nearby, the Company should have adopted the technological upgradation for minimizing the expenditure on barium carbonate, calcium carbonate, etc.

Since R&D wing of the Company had been inactive from 1997-98 it failed to notice and adopt this cost effective technique to reduce the cost of production.

Management stated (September 2003) that to their knowledge the said process was not used in any other caustic soda plants. The reply is not tenable since the process was being successfully used abroad since 1998 and this technical information supplied by AMAI, though available with the Company, was not made use of.

2.1.32 As per norms adopted by AMAI, the standard consumption of salt for production of one MT of caustic soda should be 1.7 MT. The Company had also restricted the rate of consumption of common salt as 1.69 MT during the year 1998-99. However, the Company fixed higher consumption norm of 2 MT up to March 2000 and 1.9 MT from April 2000 onwards. Against this, the actual rate of consumption varied between 1.69 and 1.93 MT during 1997-2002. With reference to the standard consumption rate of 1.7 MT, there was excess consumption of 33909 MT of salt during the five years ended 31st March, 2002 involving extra expenditure of ₹ 3.66 crore.

The management stated (February 2003) that it could not confine to the standards adopted by AMAI because there was wide fluctuation in the content of impurities in the salt available from Tamil Nadu. The reply is not tenable as the Company could maintain a consumption rate of 1.69 MT of salt per MT of caustic soda during 1998-99 when salt was procured from the same sources.

2.1.33 The Company had been using various process chemicals like barium carbonate, sodium bisulphate, hydrochloric acid, sulphuric acid, etc. during the production process. The industry norms were not being followed by the Company and the norms were being fixed every year to suit the actual consumption. It was noticed in audit that the Company was not effecting adequate control over consumption of these materials with the result the consumption far exceeded the standards and resulted in avoidable expenditure on excess consumption as discussed below:

2.1.34 As per the Project Report prepared for membrane cell plant, the standard consumption for barium carbonate was 10 kg. per MT of caustic soda for mercury plant and 6 kg. for membrane plant, against which actual consumption during the five years ended 31st March, 2002 was in the range of 10.23 to 16.42 kg. per MT. The overall annual consumption ranged between 134 and 217 per cent of the prescribed standards. The avoidable expenditure on excess consumption of an aggregate quantity of 1571.3 MT of barium carbonate during the five years up to 2001-02 worked out to ₹ 2.51 crore.

The management attributed (April 2003) the excess consumption to usage of low quality salt with high rate of impurities. Since the source of supply of salt for all the manufacturers was the same, the Company's abnormal excess consumption cannot be justified on the plea of impurity of salt.

2.1.35 In respect of hydrochloric acid there was phenomenal increase in the rate of consumption in membrane plant, which was in the range of 215 to 264 per cent of standard requirement of 15 kg. per MT of caustic soda as fixed by the Company. The consumption in mercury plant was also in excess to the extent of 105.2 to 193.9 per cent of the requirement. The overall extra cost on 3903 MT of hydrochloric acid consumed in excess of requirements during the five years up to 31st March, 2002 worked out to ₹ 1.24 crore.

The management stated (April 2003) that consumption norms given in the project report might not hold good for the entire life of the plant and that the norms fixed were for full load operation of the plant, which was not always maintained. The reply is not tenable since it was noticed that the variation in rate of consumption of chemicals was not exactly in line with the advancing age of the plant and was also not related to the capacity utilisation of the plant.

2.1.36 Excess consumption was also noticed in respect of other chemicals viz., sodium bisulphate and sulphuric acid and caustic soda lye internally consumed in the production of sodium hypochlorite as well as caustic soda flakes. The extra expenditure incurred on account of such excessive consumption during the five years ended 2001-02 amounted to ₹ 99.94 lakh as indicated in Annexure XIII.

2.1.37 In the mercury plant, mercury acts as a moving cathode for electrolysis of brine. During electrolysis, sodium combines with mercury to form an amalgam without any chemical change. As such, the mercury could be fully retrieved after the process. However, in actual practice, the sodium hydroxide, hydrogen and effluents used to contain traces of mercury, which constitutes the normal loss during production process. The standard loss of mercury as per AMAI's norms had been fixed as 1.5 to 2 MT per year for a 100 TPD plant. Reckoned at the maximum of 2 MT per annum, the loss during the five years under review should have been only 10 MT for production at 100 per cent capacity, whereas the actual loss was as high as 43.163 MT irrespective of the fact that the production level maintained was in the range of 50 to 75 TPD only, during the relevant period. The caustic soda produced in mercury plant being of rayon grade, contained only 0.0001 per cent of mercury. The value of abnormal loss amounted to ₹ 56 lakh. The reasons for the excess loss of ₹ 56 lakh during 1997-2002 has not been investigated till date.

The Company attributed (September 2003) the abnormal loss to frequent power interruptions. The reply is not tenable since audit has reckoned the excess consumption based on maximum consumption prescribed as per world standards as reported by AMAI.

2.1.38 The caustic soda lye manufactured in membrane plant was having a concentration of only 32 per cent, which was required to be enriched to 48 per cent for making it marketable and further to 99 per cent for production of flakes. The process of enrichment up to 48 per cent could be carried out either in mercury or in CCF plant. According to the Company, 70 litres of furnace oil was required for enriching one MT of caustic soda lye from 32 to 48 per cent in CCF plant. When enrichment was done along with flaking, this quantity could be reduced to 40 litres, since waste heat generated supplements consumption of fuel oil. However, no such extra cost was involved in enrichment of lye in mercury plant.

The maximum quantity of lye enriched in a year in mercury plant during the five years ended 31st March, 2002 was 24075 MT (recorded during the year 1998-99). During the remaining four years, the enrichment facility in the mercury plant was short utilised to the extent of 48421.2 MT. Even though equivalent quantity of caustic soda lye could have been enriched in mercury plant itself at no extra cost, this quantity was actually enriched in CCF plant by incurring extra cost of ₹ 1.36 crore worked out on the basis of lower fuel consumption rate of 40 litres per MT.

Management stated (September 2003) that enrichment of lye in mercury plant was generally not advisable for various technical reasons. However, audit has estimated the enrichment potential with reference to the quantities actually enriched by the Company in the mercury plant every year after giving allowance for limitations.

2.1.39 Performance of CCF plant for the five years ended 31st March, 2002 revealed the following deficiencies:

The operational standard prescribed by the manufacturers of the plant specified a consumption of 118 litres of furnace oil for production of one MT of caustic soda flakes. However, the actual consumption (furnace oil and hydrogen equivalent of furnace oil) during the five years ended 31st March, 2002 ranged between 188 and 418 litres per MT involving a total excess consumption of 7312 kilo litre, resulting in extra expenditure of ₹ 6.11 crore.

2.1.40 As part of its annual revenue budget, the Company prepares raw material budget estimating the quantity requirements and value thereof. An analysis in audit disclosed wide variation between projections in the budgeted figures and actuals. Moreover, the requirements as projected in the budget varied with the consumption norms fixed for major raw materials/consumables like salt and soda ash. As such, there was no effective budgetary control in the area of consumption of raw material/consumables.

2.1.41 The Company had been procuring raw materials on the basis of offers received against open tenders issued from time to time to meet the requirements for over a period of time. However, for purchasing materials costing below ₹ 5 lakh, limited tender system was being followed. In respect of major raw materials, negotiations were being conducted by a purchase committee consisting of senior officers in purchase/production and finance departments.

2.1.42 It was observed in audit that the Company had not been exercising necessary restrictions in the matter of selection of tenderers for negotiations. For the procurement of salt, the major raw material, forming about 80 per cent of the total purchases (value-wise), the Company had been conducting negotiations with almost all acceptable tenderers. In the circumstances, the rates quoted by the suppliers could not be deemed to be sufficiently competitive since, almost all the potential suppliers invariably get an opportunity to amend their rates during negotiation irrespective of the rates quoted. This was also in violation of the directions of Central Vigilance Commission to conduct negotiation only with the lowest tenderer. The system of collection of earnest money deposit/security deposit was not in vogue till 2001-02. Further, there was no system of levy of penalty for non-performance of contract or blacklisting the firms which defaulted the entire supplies ordered for.

Deficiencies noticed in the procurement system leading to avoidable expenditure and losses are discussed in the succeeding paragraphs:

2.1.43 The Company's nearest source of supply for industrial salt was Tuticorine and Nagarcoil/Kanyakumari areas of Tamil Nadu. Freight being the determining factor for procurement of salt, the Company should have procured the material from nearest sources so as to avail of the advantage in freight charges. However, it was noticed in audit that during the five years up to 2001-02, the Company purchased 1.14 lakh MT salt from Ramnad and Valinokkom incurring freight charges ranging between ₹ 450 and ₹ 630 per MT when salt of the same quality was available at nearby areas of Nagarcoil and Tuticorin at lower freight rates ranging between ₹ 415 and ₹ 475 per MT. The total avoidable extra expenditure due to injudicious procurement decision worked out to ₹ 1.43 crore.

The management stated (March 2003) that it preferred to source salt from various production centres without considering the lead time and extra freight since climatic condition in any area can affect salt production and it was a calculated action to see that the plant runs continuously without stoppage due to non-availability of salt. The reply is not tenable as in the following cases it was noticed by audit that the suppliers who charged higher freight rates siphoned off Company's funds by supplying the salt from Tuticorin instead of Ramnad/Valinokkom.

2.1.44 The Company stipulated allowable limits for moisture, and other impurities as well as the content of sodium chloride, in the supply orders placed for salt. However, there was no provision for recovery for the reduced content of sodium chloride in the salt supplied due to excess moisture and impurities. In 44 out of 102 purchase orders issued during 1997-98 to 2001-02, the supplies did not conform to the specifications prescribed in the purchase orders but the Company accepted the supplies, without making any price adjustment. The total extra expenditure incurred by the Company due to reduced content of sodium chloride in the supplies made against the above purchase orders amounted to ~ 33 lakh.

The management stated (February 2003) that the orders in question were placed when industrial salt was in sellers' market due to short supply from Gujarat region in the aftermath of cyclone. The reply is not tenable since the scarcity should normally have a direct impact on price of the material and not on its quality. Further, the Deputy Salt Commissioner, Ahmedabad had reported (July 1998) that in spite of the effect of cyclone the salt stocks were still available in adequate quantities in the cyclone affected areas and the stock build-up was substantial in the inland salt sources.

2.1.45 Similarly in respect of 33 supply orders issued during 1998-99, the Company failed to include penalty clauses for deviation from the permissible limits of sulphate, calcium, magnesium, insoluble residues and moisture resulting in non-recovery of penalty amounting to ~ 28.07 lakh.

2.1.46 The Company being a power intensive industry had a contract demand of 20000 KVA from a 110 KV line and 15000 KVA from a 66 KV line prior to August 1998. Thereafter the contract demand was enhanced to 29000 KVA from 110 KV line alone and the 66 KV line was surrendered. The maximum demand was around 26000 KVA with an average consumption of about 125 lakh units per month. Nearly 85 per cent of electrical energy was consumed for electrolysis of brine for caustic soda production and the balance 15 per cent for compressors, pumps, fans, blowers, etc. For direct heating in CCF plant and for steam generation in boilers, furnace oil was being used. The energy cost constituted around 65 per cent of production cost and 50 per cent of turnover.

Though an energy intensive industry should normally make all efforts to minimise energy consumption through constant monitoring of the consumption by different subsections, Company was not even having separate meters for measurement of consumption by various auxiliary plants with a view to evaluating the efficiency in power consumption at each stage. Only the gross consumption and electrolyser consumption were metered and auxiliary consumption was

allocated on theoretical basis. No energy audit was conducted up to 1997-98. The energy audit covering the period 1997-2000 was conducted by an Electrical Engineer of the Company. The directive of the Government to conduct the energy audit once in three years was not followed by the Company.

2.1.47 An analysis of the consumption of power during the five years ended 31st March, 2002 indicated that the actual consumption in the mercury plant varied between 3728 and 3817 kWh/MT. The power consumption in the membrane plant was between 2516 and 2846 kWh/MT. The highest consumption recorded in other companies (Annexure XIV) using mercury and membrane plant was 3048 and 2557 kWh/MT respectively. Compared to this, the excess consumption of power by the two plants of the Company during the five years up to 2001-02 worked out to 9.8 million units valued at ` 19.66 crore.

2.1.48 As part of the power cut imposed, the State Electricity Board, issued (November 1998) a 'differential pricing order' for Extra High Tension (EHT) consumers implementing a three-tier tariff structure for demand charges effective, from 1st December, 1998. The related order stipulated that in case the recorded maximum demand in a month during peak hours (18 hours to 22 hours) exceeded 60 per cent of the maximum demand during normal hours (6 hours to 18 hours) in a month, extra 'time of usage charges' at 80 per cent of the normal tariff rate was leviable on the excess demand. Likewise, for energy consumed during peak time in excess of 10 per cent of total consumption for the month, extra 'time of usage charges' at 80 per cent of normal tariff rate was also leviable on such excess consumption. At the same time, incentive @ 25 per cent of ruling tariff was available for maximum demand recorded during off peak time (22 hrs. to 6 hrs.) in excess of 60 per cent of the maximum demand recorded during normal hours in a month subject to the limit of contract demand. Similarly, energy consumed during off peak time in excess of one third of total energy consumed during the month would also be given in incentive @ 25 per cent of normal tariff rate on such excess consumption.

2.1.49 The Company did not restrict the maximum demand and energy consumption during peak hours to the limits prescribed under the above said order with the result that the State Electricity Board levied 'time of usage charges' amounting to ` 6.69 crore for the period from December 1998 to March 2002 whereas for excess consumption during off peak hours the Company received incentive amounting to ` 2.36 crore only.

2.1.50 It was noticed in audit that the mercury plant was operated on an average for a maximum of 18 hours/day only and it was possible for the Company either to restrict the operation of the plant to off-peak hours, or to limit the power-factor during peak time operation, thereby avoiding excess consumption liable for penalty.

The management stated (March 2003) that being a continuous plant, frequent load changing would affect the concentration of lye produced and also lead to wastage of production and low chlorine utilisation, and therefore the Company could not derive full benefit of the scheme of 'time of usage charges' formulated by the Board.

The reply is not tenable since the mercury plant could be operated at lower current density to reduce the power consumption, as observed in the 'revival scheme for financial assistance' prepared by the Company.

2.1.51 The Company, in the Project Report for membrane project, projected an increase of 28 and 26 per cent respectively in the sale of caustic soda and chlorine. The projected sales of caustic soda in various sectors of industry and actual average annual sales there against for the five years since implementation of the membrane cell project are given in Annexure XV.

It could be seen from the Annexure that there was heavy shortfall ranging from 40 to 98 per cent with reference to projections. Even though the annual average sales in various sectors recorded a decline, the Company enhanced (December 2002) the production capacity by 25 per cent without any justification. Having created a capacity of 125 TPD (tonne per day) for the membrane plant, the Company could not formulate a better sales strategy to penetrate the market and sell the products at reasonable prices. The average off take by regular customers, after commissioning of the project, was only around 25226 MT, as against 52130 MT projected by the Company, which was even less than the off take that existed prior to implementation of the project (27100 MT per annum). The Company, however, made no efforts to curtail production in mercury plant having prohibitive cost of production arising from excessive power consumption and to reduce sales to traders at very low prices. The sale of chlorine products subsequent to implementation of membrane project, were carried out mainly through traders, fetching lower prices. The Company could achieve only 35 to 49 per cent of the projected sales among regular bulk customers during the period under review, whereas the sales through traders and small-scale buyers gradually increased from 58 per cent of the projected sales in 1997-98 to 89 per cent during the next four years, with adverse effect in sales realisation.

Thus, the absence of proper sales strategy was one of the main reasons for the poor performance of the Company.

2.1.52 The excess quantities of caustic soda that could not be marketed as lye were being converted as flakes and sold mainly in upcountry markets. Details of quantity marketed, additional cost of conversion, additional sales realisation on flakes and net short realisation during the five years ended 31st March, 2002 were as Annexure B.

The details in the table showed that the sale of caustic soda flakes registered huge increase since 1997-98 even though there was short realisation on conversion, indicating that the Company had been resorting to indiscriminate production of caustic soda lye, though the market demand was very low, necessitating avoidable conversion into caustic soda flakes and resultant extra cost of ₹ 7.93 crore.

Further, the price realisation for flakes did not have any relation with the trend in lye prices. It varied between 96.65 and 112.50 per cent of price of lye during the above period, indicating that the prices of flakes were not fixed on a rational basis.

2.1.53 Bulk of the production of caustic soda flakes was being marketed through traders for want of adequate demand from actual users and such sales ranged between 59.5 and 83 per cent of total sales during the five years ended 31st March, 2002.

Out of 50, 180 MT flakes sold to dealers during the five years up to 2001-02, 18024 MT (35.92 per cent) flakes were sold at prices below the cost of production. The loss sustained by the Company on account of such sales amounted to ₹ 3.98 crore.

The management stated (March 2003) that irrespective of the poor sales realisation it continued with the production of caustic soda flakes, at certain pre-determined levels in order to cater to the demand for by-products viz., chlorine and HCl for which the market prices were attractive and hence the overall sales realisation would make good the cash loss sustained as above. The reply is not convincing as the contribution from the by-products also did not make good the short realisation from the main products as discussed in paragraph 2.1.63 *infra*.

2.1.54 The Company had been fixing list price from time to time within the price recommended by AMAI in 1994. There was no scientific basis for price fixation. Only 4 to 7 per cent of gross production was sold at list prices. The remaining quantities were sold at varying prices, directly to regular customers as well as traders. The Company had not been following any norm or formula for determining the prices applicable to traders and other regular customers. The actual sale prices were not linked to list prices. The Company had sold its products at varying prices even among traders operating at the same station, during the same period. No specific yardsticks were applied by the Company while fixing price of its products, and the only basis was the market report furnished by its marketing department which was not based on any authentic data on market situation.

There was wide variation between the selling price fixed for public sector and private sector consumers. The price of caustic soda lye fixed for private sector consumers was always on the lower side and the difference ranged between ₹ 896 per MT (2001-02) and ₹ 2,104 per MT (2000-01). The graph as given in Annexure C shows the variation in the quarterly average price per MT allowed to private sector consumers with reference to the average price of public sector consumers of the Company vis-a-vis quantity lifted, for the 5 years up to 2001-02.

The management stated (March 2003) that as long as the product was in buyer's market, it was not in a position to work out a pricing formula to determine the price for traders in each deal, and that prices for supplies to regular customers were not comparable with the ad hoc prices levied for traders. The reply is not tenable since the middlemen, acting as dealers had taken advantage of ad hoc prices by buying the Company's product at lower rates and selling the same to customers at higher rates.

2.1.55 Cochin Minerals and Rutilites Limited (CMRL) had been a major customer of the Company in the local market, having annual off take of hydrochloric acid (HCl) in the range of 28 to 44 per cent of the production. The Company sold 148105 MT acid to CMRL during 1997-2002. Based on the contract with CMRL effective till March 2003, the price of HCl had to be refixed with reference to landed cost of salt and effective electricity charges. The price so fixed for the year 1998-99 was ₹ 1,500 per MT. 25349.72 MT acid was sold to CMRL at the above price. Even though, as per agreement, the prices were to be refixed at ₹ 1,492, ₹ 1,880 and ₹ 1,928 per MT respectively, during the three years up to 2001-02, the Company did not revise the prices resulting in avoidable loss of ₹ 3.71 crore. There were no reasons on record for extending the concessions by not revising the price as per agreement.

The management stated (May 2003) that the price concession was initially extended during 1998-99 to liquidate the excess stock and the concessions were extended for reasons such as supply of the product by other southern manufacturers at drastically reduced prices, unilateral withdrawal of CMRL from the long-term agreement with effect from 1999-2000. The reduced off take by CMRL during 2001-02 was attributed by the Company to technical problem with plant at CMRL end, considering which no revised rates were demanded for the lower off take.

None of the above contentions of the Company were supported by documentary evidence and cannot be accepted since the price concessions were outside the scope of the contract without obtaining the specific approval of the Board. It was also noticed that similar price concessions for HCl were not extended to Kerala Minerals and Metals Limited (KMML) another major PSU in local market.

2.1.56 The Company had been producing and selling hydrochloric acid of commercial grade having a concentration range of 30-32 per cent. The Company could maintain the acid concentration at the specified level during 1997-98, 2000-01 and 2001-02. But in the intervening two years 1998-99 and 1999-2000, the level of concentration, on an average was between 32.5 and 32.6 per cent resulting in delivery of excess quantity of 2591 MT of acid valued at ₹ 34.96 lakh imparting undue benefit to the buyers.

2.1.57 The table given in Annexure D indicates the comparative position of sale of Company's products during the five years from 1997-98 to 2001-02:

2.1.58 Mention was made in paragraph 2B.7.1 of the Report of the Comptroller and Auditor General of India for the year ended 31st March, 1994 that 35.8 per cent of caustic soda (lye and flakes), 26.5 per cent of chlorine and 34.5 per cent of hydrochloric acid were being marketed through traders outside Kerala, at substantially lower sales realisation. The sale to traders outside Kerala during the five years ended 31st March, 2002 represented 35.66 per cent for caustic soda, 20.80 per cent for chlorine and 8.8 per cent for HCl, indicating that the dependence on traders for the main product (i.e. caustic soda) did not reduce. The need for augmenting direct sales, pointed out in the Report of the Comptroller and Auditor General of India for the year ended 31st March, 1994 and the related recommendation of COPU to revamp the sales policy to make the operations more profitable, did not receive adequate attention of the Company and sales through the traders continued to increase over the years.

It was also noticed that:

While the Company had been making direct sale of caustic soda lye to South India Viscose Limited, Coimbatore, it was routing the sale of chlorine to the same party, through the agents.

The ultimate consignees of the traders included Public Sector Undertakings such as Madras Fertilizers, Mangalore Refineries and Petro Chemicals Limited, Karnataka Soaps, etc., with whom the Company could have established direct dealings.

Kerala based companies like HLL get their supplies directly from the Company whereas their units located outside Kerala were being serviced through trader.

2.1.59 The Company had been selling part of its production of caustic soda lye, on a regular basis, through Textile Dye-Chem, Madras (TDC). The trader had been buying on an average 20 per cent of annual production of the Company for resale mainly in the neighbouring states of Tamilnadu and Karnataka. The prices were

fixed on the basis of negotiations at the level of Marketing Manager/Financial Controller and Managing Director, almost on month to month basis. The prices realised were considerably lower than that for direct sales within Kerala, because the Company had to absorb the extra cost incurred by the trader towards marketing of product, freight and trader's margin, etc. The following irregularities were noticed in the trading arrangement:

2.1.60 TDC had been acting as a sole selling agent of the Company's product for outside states for the past two and a half decades. The Company had not tried with the more prudent system of engaging different traders/selling agents with a view to bring in competition and maximisation of sales as well as realisation. The Company, however, maintained (March 2003) that operation through multiple traders might lead to unhealthy competition and undercutting of prices. Since the Company had not tried to obtain competitive prices, the reply is not tenable.

2.1.61 While the quantum of annual sale of caustic soda lye since 1997-98 had been fluctuating, the share of TDC increased from 18.17 per cent in 1997-98 to 30.63 per cent in 2002-03, mainly as a result of closure of certain consumer units within the state. The percentage of average price realised from TDC to that from the direct sale came down from the level of 92.31 during 1998-99 to 69.36 in 2002-03 indicating the heavy concession in price allowed to TDC. Though the trading arrangement was in existence for over 25 years the Company had not evolved a suitable price fixation formula linking the prices fixed for trader to the prices realised from regular buyers.

The management stated (March 2003) that their sources of market information confined to price-quotations made by competitors in tenders participated by the Company and information passed on during meetings of Alkali Manufacturers Association. Audit observed that there was no system of documenting even the available information and the management had been depending on the information furnished by Marketing department, which were not authentic.

2.1.62 Government of Tamilnadu had imposed entry tax for caustic soda since April 2002. The Company effected reduction in the sale price to TDC so as to offset this extra charge which otherwise would have reduced traders' margin. It was noticed that the entry tax was available for set off to actual users against sales tax liability, and hence the Company need not have absorbed it as an extra cost had it been documented as direct sales to ultimate customers, instead of sales to trader for eventual resale, especially in view of the fact that the consignments were directly transported and delivered by the Company to such consumers. Instead of utilising this option, the Company continued with the trading arrangement, ignoring the substantial reduction in sales realisation, resulting in loss of ₹ 1.48 crore during April to December 2002.

2.1.63 The Company had been following the strategy of maintaining the production of caustic soda at optimum levels, irrespective of the cost of production and fluctuation in demand in the State. Quantities in excess of that required within the State of Kerala were disposed of outside the State at very low prices, which were at times even below the variable cost, on the ground that the short realisation for caustic soda was being compensated with the higher price realisation from by-products viz., chlorine and hydrochloric acid. However, it was noticed that the Company had, in fact marketed its chlorine products outside the State also at reduced prices which were not adequate to compensate the short realisation from main product. Thus, the extra production of 11824 MT during 2001-02 in the mercury plant had resulted in cash loss of ₹ 1.85 crore even after reckoning the contribution from the sale of matching quantity (10476 MT) of by-products which was avoidable if the Company had judiciously conducted a cost benefit analysis on the above basis, before resorting to such extra production.

The management stated (April 2003) that it had to run the mercury plant at a minimum capacity of 40 TPD and it was practically not possible to restrict the production load in view of higher rate of power consumption at lower load. The reply cannot be accepted since the Company did not restrict production even to 40 TPD and the actual operation during 2001-02 ranged between 45 and 80 TPD. Higher rate of consumption of power was noticed only when the load was below 25 TPD.

2.1.64 The Company's sales were on credit basis with the credit period being 15 to 30 days. However, the customers actually availed of about two months' credit on an average, and in certain cases the settlement of debt was prolonged up to nine months. Though the terms of sale provided for levy of overdue interest @ 20 per cent, the Company had not been enforcing this stipulation and instead granted extra credit facility to a group of traders and consumers as discussed below:

2.1.65 The Company extended additional credit facility of 30 days to the trader (TDC) for caustic soda lye even though the prices fixed were lesser. The interest cost absorbed by the Company for the extended credit period allowed to TDC during 1999-2002 amounted to ₹ 46.26 lakh calculated at the borrowing rate of 18.16 per cent per annum.

The management stated (March 2003) that the credit facility provided to industrial customers and traders cannot be equated and that the extra credit periods were allowed in view of recessionary trend in market. The views of the Company are not acceptable since the Company had been allowing periodical adjustments in price of such customers taking into account the market trend.

2.1.66 The Company had been selling about 8 to 15 per cent of its annual production of caustic soda lye to South India Viscose Limited, Coimbatore, (SIV) through the del credere agent Sree Balaha Chemical Agencies (SBCA). The agent was a sister concern of the Company's trader TDC for sale of lye outside Kerala. Against the stipulated credit period of 30 days, TDC was being allowed credit period ranging from 9 to 10 months and the balance outstanding from SIV at the end of 2001-02 amounted to ₹ 2.56 crore when their transactions stopped. The Company received only ₹ 42 lakh up to March 2003 @ ₹ 4 lakh per month that too by way of adjustment from another sister concern of the same group (GEM) to whom credit facility had been extended by the Company and was also a defaulter in repayment of dues. The net amount realisable from SIV as of March 2003 was ₹ 2.14 crore.

2.1.67 The Company commenced sale of lye to SIV, since 1981 and the materials were being despatched and invoices raised on the firm directly. However, no efforts were made to eliminate the agent and make direct sale to SIV, but agency commission was being paid to SBCA. The total amount of commission paid for the period 1997-2002 was ₹ 0.51 crore. The Company had not initiated any legal action against SBCA for realisation of dues despite clear provision in the agreement.

It was also noticed that overdue interest of ₹ 47.82 lakh charged and accounted for in the books in four cases was written off during 1998-2001.

2.1.68 The Company had also been selling materials against post-dated cheques. Excluding the case of Trayons, cheques received from customers for ₹ 33.50 lakh (14 cheques) were dishonoured during 1999-2000, ₹ 24.43 lakh (41 cheques) during 2000-01 and ₹ 85.92 lakh (57 cheques) during 2001-02. The Company, however, did not take any legal action.

The Management stated (April 2003) that it followed a liberal credit policy due to competition in the market, and contended that it would have lost the market share in case a rigid credit policy was adopted. However, the fact remained that the Company did not consider that additional financing cost due to delayed realisation would offset the meagre contribution from sale of the products.

2.1.69 Mention was made in the Report of the Comptroller and Auditor General of India for the year ended 31st March, 1994 about the impropriety in extending credit facility for an amount of ₹ 54.18 lakh to Travancore Rayons Limited (Trayons) and the COPU had also recommended against such credit facility in their report number 29 of 1996-1998.

It was noticed that the Company continued with the credit sales to this customer and the dues amounting to ₹ 1.04 crore had accumulated up to July 2001 when Trayons was shutdown. Though 124 cheques aggregating ₹ 1.46 crore issued by Trayons in settlement of dues were also dishonoured (2000-01), credit facility was continued by the Company, ignoring the objections of the Finance Wing (November 2000) and no legal action was initiated. Though Trayons had assured to clear the dues on receipt of financial assistance from KSIDC, the commitment was not honoured despite receipt (June 2001) of ₹ 2.75 crore from KSIDC and the Company did not follow-up the matter but treated (2001-02) the debt as doubtful of realisation.

The management stated (March 2003) that the supply to the defaulter was not discontinued in the interest of maintaining production and sales at existing levels. The reply cannot be accepted since the excessive credit facility granted to Trayons resulted in non-realisation of dues.

2.1.70 The manpower available with the Company was not downsized even though many of the plants were scrapped in course of time. As estimated (September 2001) by the Company, its employees cost was about 17 per cent of cost of production, as against 6 to 7 per cent in similar units. However, the Company had not taken any action either to gainfully deploy the surplus manpower or to downsize it.

A committee constituted to finalise proposals for restructuring manpower reported 361 (33 per cent) out of the total 1095 employees as surplus. Based on the average emoluments of employees, the extra cost on surplus manpower for the five years up to 2001-02 amounted to ₹ 5.18 crore. Pending formal settlement with the unions and final orders from Government, the Company had accommodated (January 2003) the surplus manpower in a common pool.

2.1.71 Even after identifying surplus employees there was injudicious deployment of manpower leading to avoidable expenditure, as discussed below:

When the Company was having surplus manpower, 33 workers were engaged on contract/casual basis on sundry jobs. The extra expenditure on contract workers from July 1995 to February 2003, amounted to ₹ 65 lakh. Further, contract workers were being continuously engaged from July 1995, without Government's approval.

In spite of availability of surplus strength, the Company paid overtime wages to the extent of ₹ 3.10 crore during the five years up to 2001-02.

The management stated (May 2003) that it undertook a comprehensive restructuring of its workforce during 2003 only, as per directive from Government. The restructuring in respect of managerial personnel was in progress (May 2003).

Non-recovery of staff advance

2.1.72 The Company had been paying advances to all its employees including contract employees during festivals and re-opening of schools. As per memorandum of settlement, signed (March 1997) with trade unions, school and festival advances were recoverable in ten and five instalments, respectively. It was however, noticed in Audit that the School and Onam advances paid from 1998 onwards had been pending recovery except in respect of contract employees and retired employees. The amount recoverable increased from ₹ 61 lakh in 1998-99 to ₹ 1.78 crore in 2001-02.

2.1.73 Without assigning any reason the Company had written-off ₹ 63 lakh paid as Onam and School advances during 1999. This was done on the basis of the minutes of a discussion held with trade unions in the presence of the Minister of Industries and Social Welfare, without any formal sanction from Government. The write-off was also not separately reported to the Board of Directors. The Company stated (September 2003) that they intend to recover the advance in 10 equal instalments from the employees.

2.1.74 The Company being a manufacturer of hazardous chemicals required the consent of State Pollution Control Board under the Water/Air (Prevention and Control of Pollution) Act, to carry-on with its manufacturing operations. The operation of any industrial plant without the said consent was a culpable Offence, punishable as per provisions of the concerned Acts. Though the validity of the consent under the Water Act expired (December 2001), the Company had been carrying-on operation since January 2002, without having the statutory consent.

The consent under Air (Prevention and Control of Pollution) Act, 1981 also expired in December 1996. The Company had been working for all the seven years from January 1997 to 13th February, 2003 without possessing the statutory consent. Conditional consent was granted in February 2003 only.

The consent letter prescribed compliance of 13 conditions including raising of the height of all the 14 chimneys from 18-21 metres to 30 metres before end of June 2003 and phasing out of the mercury plant by December 2004. No effective action was taken by the Company (May 2003) to comply with these directives.

2.1.75 The Company had an internal audit wing of its own, headed by Secretary-cum-Internal Audit Officer and consisting of other two officers, two assistants and a stock verifier.

The Company was having an Internal Audit Manual prepared by a firm of Chartered Accountants. As per the manual, the areas essentially to be covered in

internal audit were ensuring timely realisation of accounts receivable, stores control, prompt repayment of staff advances, scrap valuation, etc. There was lack of adequate internal control in all the above areas, as discussed in paragraphs 2.1.64, 2.1.72 and 2.1.73 *supra*. The Statutory Auditors also reported in their Report for 2000-01, that the internal audit of the Company was confined to stereo-typed checking of transactions and that no attempts were made to scrutinise the credit policy, debt recovery, pricing policy, marketing strategy, etc. In view of the deficiencies in the existing system, Company had engaged (June 2003) a firm of Chartered Accountants to undertake the internal audit functions for a fee of ₹ 50,000 per annum.

The above matters were reported to Government in August 2003; their reply is awaited (September 2003).

[Audit Paragraph 2.1 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March, 2003.]

The notes furnished by Government on the Audit Paragraph is given in Appendix II.

1. The Committee expressed its displeasure over the delay occurred in furnishing replies to the audit paragraph and remarked that the Government replies to many paragraphs pertaining to investment, fund utilisation, installation of machineries, production, selling of products, etc. were not satisfactory and required clarifications.

2. The Additional Chief Secretary, Industries Department explained that the Travancore-Cochin Chemicals Limited installed a new membrane cell plant in 1997-2002 to enhance the production capacity as part of modernisation. The company at first devised a financial pattern by way of Public issue of shares for resource mobilisation but as funds from equity shares were not forthcoming as envisaged, the company opted for term loans.

3. The witness elaborated that when the company was incorporated in 1951, the State had surplus electricity and the company was started with an objective to utilise the surplus power available in the State at that time. The Travancore-Cochin Chemicals Limited continued to adhere to Mercury Process Plant, till 1997 and then by taking into account the increased market demand from Caustic Soda, consuming industrial institutions like, Gwalior Rayons, Travancore Rayons, etc. the company had decided to install technological upgradation as a long-term strategy. The membrane cell plant, projected as a pollution free power saving technology, was the best technology available at that time and hence the company had decided to install the plant. The need of technological upgradation as well as the high level of pollution emitted by the mercury plant necessitated its replacement in the company.

4. The witness further stated that with regard to the funds required for modernisation the company was directed by the Government to raise the funds through issue of equity shares. At that time the company had an accumulated profit of ₹ 10-18 crore and its equity share valued ₹ 10 each was getting the premium of ₹ 60. Had these shares been floated in the market an amount of ₹ 70 crore could have been collected as source for funding the modernisation programme in the company.

5. But this could not be materialised as there was a change in Government and the new Government's policy was not in favour of issuing equity shares; but directed to borrow funds to continue the process of modernisation of the plant, hence the company had to avail loans at a higher interest @ 18.5 to 21% from Kerala Industrial Revitalisation Fund Board (KIRFB) on the advice of the Government. This loan liabilities along with the previous liabilities made the company to fall into debt trap. Though double the amount of money borrowed have already been repaid, ₹ 45 crore was still outstanding as liability. The witness added that had the company raised funds through equity participation instead of availing loans, such a financial crisis could have been avoided.

6. On enquiry of the Committee regarding the reasons behind the extra expenditure during the installation of the plant the witness replied that the membrane cell plant required salt of extra pure quality and the raw salt available then did not have that much purity as envisaged for better performance of membrane cell plant that was only guaranteed when pure salt was used. So the company had to invest funds in setting up a salt upgradation plant for the purification of raw salt. As it had been found more economical, the company had to purchase salt from Gujarath and began to use by mixing it with the Tuticorin Salt. But later the rise in power tariff made the plant difficult to run and hence for its modernisation, additional funds were also required to be invested.

7. When the Committee enquired about the present financial position of the Company, the witness answered that at present the company was running profitably and expressed hope that once the debts were cleared company would be able to wipeout the accumulated loss and thereafter to function more profitably. Then the Committee remarked that the company committed a mistake in estimating the overall expenses needed for technological upgradation and that was the main reason for audit objection.

8. At this juncture the Accountant General pointed out that the company should have done a cost benefit analysis before taking up the investment decision. The company, while projecting the viability of the project highlighted as energy saving a major advantage but ignored the auxiliary expenses incurred in replacement of membrane, excess consumption of furnace oil, additional cost

incurred in salt upgradation process etc. He also remarked that had the company foreseen the additional cost involved in the aforesaid areas, the company could have made profit even when it had to pay an amount of ~ 8 crore as interest.

9. When the Committee sought explanation for the negligence of the company in this regard, the witness could not give a satisfactory reply but elaborated on all aspects that necessitated the installation of flaking plant. Though the technological upgradation had led to increase in production the local demand for caustic soda had decreased considerably due to the closure of some of the major caustic soda consuming industries in and around the State that prompted the company to depend heavily on upcountry markets for selling. For this, caustic soda had to be converted into flakes for transportation to longer distances. Thus the measures of production capacity enhancement proved to be non-productive as it required additional investment, such as installation of flaking plant for maintaining the production level. Moreover, though the company was started for supplying caustic soda to major industries in the beginning it has now dominated more in chloride and acid supply but less in caustic soda.

10. To a question of the Committee regarding the profitability of converting caustic soda into flakes the witness replied that though income and expenditure was not directly proportional it was indeed profitable. The Committee then enquired whether modernisation was aimed at market intervention, the witness replied that market situation was unpredictable. The Committee further noticed that the company failed to exploit the chances for minimizing the replacement cost at the time of modernisation owing to lack of proper market study for the purpose. The Committee further added that in future the company should arrive at a prudent investment decision after taking into account all the pros and cons of the issue, based on previous experience. The Committee expressed its displeasure over the manner in which audit objections were trivialized by CMD.

11. The witness while answering a question stated that productivity of the company had improved considerably and the main problem faced by the company now was rectifier failure which would be overcome by installing transformers during next phase of modernisation. The witness assured that the company would try to take measures to check the recurrence of such defects in future. Regarding the consumption of Hydrogen, the witness submitted that 99.8% of Hydrogen produced was being used as fuel. The witness also added that the decision for public issue of shares was taken with the consent of Government but later the change in Government policy had led to the present financial crisis in the Company.

12. Though the Committee favoured for modernisation as essential for the progress of the company, the Committee expressed its dissatisfaction over the

failure of the company in conducting, a cost benefit analysis and proper market study prior to recourse to the modernisation measures. The main objection raised in the audit was that the cost benefit analysis conducted by the company as a part of modernisation project was with exaggerated figures of saving while ignoring additional cost of operation. The Committee viewed these lapses seriously and directed that such decisions in future should be taken only after proper study and analysis.

13. The Committee observed that there occurred a clear negligence on the part of the company in ensuring the performance guarantee benefits of salt upgradation plant. The plant was commissioned after the expiry of guarantee period and no fruitful measures were taken to extend the guarantee period in time and hence the company could not penalise the suppliers for the poor performance of the plant. The Committee viewed the lapse seriously and directed that this kind of negligence and irresponsibility should not be repeated. Regarding pollution and manpower the witness assured that at present The Travancore-Cochin Chemicals Limited was an enterprise with zero discharge of effluent in Aroor sector and company had taken effective measures to downsize the manpower.

14. The witness also brought to the attention of the Committee that the company, being highly working capital intensive was directly prone to market fluctuations. During the current fiscal the company made a profit of ₹ 1.5 crore. But the grave problem faced by the company was lack of investment. The company required an investment of ₹ 50 crore for the installation of a new plant. The witness requested that if a financial assistance of ₹ 100 crore was allowed as grant the company would be able to clear all its debts and move forward towards modernisation. The Committee expressed its desire to visit the company and agreed to recommend to Government for an allotment of ₹ 50 crore for modernisation of the company.

Conclusions/Recommendations

15. The Committee finds that the Company went in for technological upgradation without conducting cost benefit analysis in a realistic manner. The project undertaken in anticipation of public issue of shares and equity participation from Government did not materialise due to the change in Government policy and therefore the entire funds had to be made out of borrowed funds.

16. The Committee observed that the Company further invested funds in allied plants in order to facilitate maximum production. While highlighting the advantage of energy saving, the Company ignored the auxiliary expenses associated with the membrane. Thus the Committee finds

that the company could not generate additional revenue as anticipated in areas of energy, production cost, etc. due to unrealistic project report and estimate made for technological upgradation.

17. The Committee also finds that the overall cost effectiveness of technological upgradation could not be achieved due to increased cost of production, installation of allied plants and maintenance cost of the new plant. The Committee criticises that the company had ventured into capacity enhancement worth ~ 6.96 crore of the membrane cell plant without analysing the demand for caustic soda which has resulted in an unproductive investment of ~ 6.96 crore using borrowed funds. The membrane cell plant projected to have technical supremacy manifested several manufacturing defects and hence it could not provide guaranteed performance. The Committee expresses its dissatisfaction over the failure of the company in conducting a cost benefit and market analysis before venturing into modernisation measures. The Committee recommends that the company should evolve a selling policy to tackle the market fluctuations.

18. The Committee remarks that the company could reduce neither allied expenditure nor cost of production by technological upgradation. The capacity enhancement also proved to be non-productive due to the reduced market demand for caustic soda and necessitated installation of flaking plant. This indicates that the company failed to conduct cost benefit analysis before taking investment decision.

19. The Committee further learns that there occurred serious lapse on the part of the company in ensuring the performance guarantee benefits of salt upgradation plant and penalising the supplier for not ensuring it and directed that this kind of negligence and irresponsibility should not be repeated in future activities.

20. The Committee understands that the company is facing a grave problem of lack of investment. The Committee remarks that the failure of the efforts made by the Company in implementing the project with equity participation of the Government led to the financial crisis and hence the Committee recommends to the Government to take necessary steps to allot ~ 50 crore as grant so that the company could tide over the present financial stringency.

Thiruvananthapuram,
30th June, 2014.

K. N. A. KHADER,
Chairman,
Committee on Public Undertakings.

APPENDIX I

SUMMARY OF MAIN CONCLUSIONS/RECOMMENDATIONS

<i>Sl. No.</i>	<i>Para No.</i>	<i>Department</i>	<i>Conclusions/Recommendations</i>
(1)	(2)	(3)	(4)
1	15	Industries	The Committee finds that the Company went in for technological upgradation without conducting cost benefit analysis in a realistic manner. The project undertaken in anticipation of public issue of shares and equity participation from Government did not materialise due to the change in Government policy and therefore the entire funds had to be made out of borrowed funds.
2	16	”	The Committee observed that the Company further invested funds in allied plants in order to facilitate maximum production. While highlighting the advantage of energy saving, the Company ignored the auxiliary expenses associated with the membrane. Thus the Committee finds that the company could not generate additional revenue as anticipated in areas of energy, production cost, etc. due to unrealistic project report and estimate made for technological upgradation.
3	17	”	The Committee also finds that the overall cost effectiveness of technological upgradation could not be achieved due to increased cost of production, installation of allied plants and maintenance cost of the new plant. The Committee criticises that the company had ventured into capacity enhancement worth ` 6.96 crore of the membrane cell plant without analysing the demand for caustic soda which has resulted in an unproductive investment of ` 6.96 crore using borrowed funds. The membrane cell plant projected to

(1)	(2)	(3)	(4)
			have technical supremacy manifested several inherent defects and hence it could not provide guaranteed performance. The Committee expresses its dissatisfaction over the failure of the company in conducting a cost benefit and market analysis before venturing into modernisation measures. The Committee recommends that the company should evolve a selling policy to tackle the market fluctuations.
4	18	Industries	The Committee remarks that the company could reduce neither allied expenditure nor cost of production by technological upgradation. The capacity enhancement also proved to be non-productive due to the reduced market demand for caustic soda and necessitated installation of flaking plant. This indicates that the company failed to conduct cost benefit analysis before taking investment decision.
5	19	”	The Committee further learns that there occurred serious lapse on the part of the company in ensuring the performance guarantee benefits of salt upgradation plant and penalising the supplier for not ensuring it and directed that this kind of negligence and irresponsibility should not be repeated in future activities.
6	20	”	The Committee understands that the company is facing a grave problem of lack of investment. The Committee remarks that the failure of the efforts made by the Company in implementing the project with equity participation of the Government led to the financial crisis and hence the Committee recommends to the Government to take necessary steps to allot ` 50 crore as grant so that the company could tide over the present financial stringency.

APPENDIX II

NOTES FURNISHED BY GOVERNMENT ON THE AUDIT PARAGRAPHS

<i>Sl. No.</i>	<i>Para No.</i>	<i>Action Taken</i>
(1)	(2)	(3)
1	(2002-03) 2.1.5	The total amount payable to KIRFB as on 27-9-2009 towards Principal and interest comes to Rs. 45.50 crore. This was converted into 8.5% interest p.a. KFC and the company is repaying the principal and interest without default as on date.
	2.1.6 & 2.1.7	The net worth of the company as on 31-3-2009 was Rs. 1065.31 lakh and the company is taking all efforts to reduce the cost of production in order to increase the profitability of the company thereby increase the net worth.
	2.1.8	As per the fund agreements with the State Bank of Travancore, the company has to deposit 10% of the LC amount as margin money for which company gets the interest which is as per the policy of the bank and the company is not unnecessarily depositing in fixed deposits.
	2.1.9, 2.1.10, 2.1.11, 2.1.12, & 2.1.13	From the tabulation given below it can be seen that the average energy saving by way of installing the membrane cell is 1160 kWh/Ton compared to Hg Cell. The average saving during the 5 year period ended 31-3-2002 comes to Rs. 37.65 crore, which will offset the other maintenance expenses such as membrane replacement, recoating of electrodes etc. The average salt consumption remained at the same level at 1.7 MT/Ton of caustic soda production since the inception of the membrane cell plant. As per the supplier guidelines, the membrane was to be replaced after 3 years of installation. There is no hard and fast rule as far as this stipulation is concerned. Depending upon the performance and other connected factors a delay in this regard would not adversely affect the total performance of the plant.

(1)	(2)	(3)			
Energy Consumption					
<i>Month</i>	<i>PlantI kWh/T</i>	<i>PlantII kWh/T</i>	<i>Month</i>	<i>PlantI kWh/T</i>	<i>PlantII kWh/T</i>
(1)	(2)	(3)	(4)	(5)	(6)
1997			June	2636	4018
April	3195	3730	July	2668	3932
May	2713	3795	August	2690	4221
June	3250	8110	September	2678	3749
July	2482	3805	October	2688	3716
August	2532	3993	November	2696	3751
September	2507	3829	December	2697	3710
October	2515	3707	2000		
November	2474	3700	January	2706	3659
December	2438	3606	February	2693	3654
1998			March	2681	3619
January	2521	3600	April	2626	3699
February	2515	3668	May	2644	3650
March	2504	3777	June	2669	3668
April	2560	3825	September	2702	3787
May	2564	3842	October	2710	3841
June	2564	3814	November	2699	3819
July	2564	3738	December	2738	3854
August	2576	3807	July	2762	3808
September	2581	3677	August	2762	3785
October	2566	3658	September	2808	3797
November	2614	3687	October	2861	3808

(1)	(2)	(3)				
	(1)	(2)	(3)	(4)	(5)	(6)
	December 1999	2585	3796	November	2836	3958
	January	2576	3861	December	2772	3782
				2002		
	February	2564	3880	January	2763	3581
	March	2626	4065	February	2770	3868
	April	2662	3859	March	2762	3582
	May	2649	4022			
	From August 2000 to March 2002				2747	3787
	Average from May 1997 to March 2002				2633	3913
	Total Average				2690	3850
	Difference				..	1160 kWh
	Consumption difference in 5 years:					
	With 707.6 kWh saving calculated is Rs. 22.97					
	With 1160 kWh saving is Rs. 37.65 crore					
2.1.14	There was a built provision for 25 MT/day capacity					
&	additions when the 100 MT/day membrane plant was					
2.1.15	installed. This provision was given anticipating the hike					
	in grid tariff which also came true in the succeeding					
	years. TCCL could maintain the level of production only					
	because of this capacity addition to meet the existing					
	customer's demand because of the advantage in energy					
	consumption when compared to mercury cells. The					
	production quantities were fixed at an optimum mix of					
	production from Membrane and Mercury plants,					
	considering the operational constraints, availability of the					
	plant capacity and energy consumption per ton of					
	production. Volume was never a constraint in marketing,					
	rather making product at comparable cost existed in the					
	industry was the limiting factor especially in buyers					
	market and that too with 2 to 3 market share.					

(1)	(2)	(3)		
Production				
<i>Hg.</i>	<i>Membrane</i>	<i>Tariff (Rs.)</i>	<i>Total</i>	<i>Month</i>
2157	2708	2.42	4865	April 2001
2188	2811	2.42	4999	May
2488	2886	2.42	5374	June
2278	2812	2.42	5090	July
2402	2811	3.02	5213	August
2095	2664	3.02	4759	September
2400	2635	3.02	5035	October
1871	2537	3.02	4408	November
1674	2436	3.02	4110	December
1237	2796	3.02	4033	January 2002
675	2386	3.02	3061	February
861	2321	3.02	3182	March
935	2619	3.02	3554	April
550	2947	3.02	3497	May
0	2795	3.02	2795	June
951	2804	3.02	3755	July
1614	3085	3.02	4699	August
1483	2945	3.02	4428	September
1248	2811	3.53	4059	October
1118	2402	3.53	3520	November
0	3601	3.53	3601	December
593	3678	2.42	4271	January 2003
1044	3260	2.42	4304	February
1207	3563	2.42	4770	March

(1)	(2)	(3)
		<p>The achieved saving in power cost after capacity enhancement is given below:</p> <p>DC energy consumption in additional 4 electrolyzers in Membrane plant is 2215 Units/MT of Caustic Soda.</p> <p>DC energy consumption in Mercury Cell Plant for the month November 2000, prior to commissioning of additional 4 electrolyzers was 2923 Units/MT of Caustic Soda. Hence the saving in power is 708 Units/MT (2923-2215). Considering the present power tariff of Rs. 3.5 per kwh for EHT consumers the saving per Ton of Caustic Soda produced comparing to Mercury plant is Rs. 2,478 (Rs. 3.5x708). Since concentration of Caustic Soda in Membrane Cell Plant is 32%, the same has to be concentrated to 48 to 50% NaOH in CCF plant for making saleable NaOH. 70 litres Furnace Oil is required for producing one Ton 48 to 50% NaOH from 32% NaOH. The cost for the same is Rs. 840 (Rs. 12x70). Hence the net saving is Rs. 1,638 . The net saving per MT of Caustic Soda produced in additional electrolyzers due to energy saving is Rs. 1,638 (2478-840). The annual saving comes to Rs. 1,35,13,500 (Rs. 1,638x330).</p>
2.1.16		<p>ABB conducted performance test on the rectifier system as per contract, and it was found that guaranteed efficiency was obtained 98.22%, hence it was accepted. It may be noted that the guaranteed efficiency is given at 210V 61KADC. Since the rectifier installation, the harmonic level in the system has increased which has adversely affected the efficiency of the rectifier unit.</p> <p>The efficiency guaranteed is based on the internationally accepted formula, which consider only the estimated loss where as the efficiency reported in the actual. Even during the commissioning time, there was a difference of 1.5 to 2% difference between the estimated and actual efficiencies.</p>

(1)	(2)	(3)
	2.1.17 & 2.1.18	<p>Delay in commissioning of a project may occur due to unforeseen reasons and conditions beyond control of the parties involved. It is true that a delay has occurred in this case also. But the supplier has adhered to the clause entered into the contract such as guarantee run etc. The equipment failure cannot be solely attributed to the design flaw. The complexity of operation and running parameters along with frequent interruptions of the plant due to power failure can also contribute to equipment failure. Even though the performance guarantee contract was not extended after expiry of the same, the supplier positively responded for the replacement of 5 failed Nickel tubes free of cost. They also established the Hydrogen Firing System properly as per the contract.</p> <p>It may also be noted that the supplier Company M/s Bertrams went on liquidation during the same period which was another constraint to go further.</p>
	2.1.19	<p>Hydrogen from membrane cell plant was drawn to mercury plant to maintain steady production in the acid plant, as liquefaction plant was not run due to high power consumption. When the level of production in mercury plant was reduced the available extra hydrogen was used in CCF. At no point of time hydrogen as a fuel is waste.</p> <p>TCCL does not have any provision for utilising hydrogen in the existing boilers. The boilers were procured around 30 years back. So no provision was envisaged at that time.</p>
	2.1.20, 2.1.21, & 2.1.22.	<p>Acute shortage of the common salt along with poor quality of the material favoured the decision for this project. The subsequent operation of the plant was not effected as good quality salt and other parameters were weighed between purchase of low quality salt or good one and the decision was taken accordingly.</p>

(1)	(2)	(3)
	2.1.23	Sodium Hypochlorite Plant was commissioned to utilise the waste chlorine generated during the manufacturing process of caustic soda thus increasing the overall profitability. Thus the capacity of the plant purely depends upon the availability of waste chlorine. The 15000 TPA installed capacity includes the extra capacity required for killing the chlorine during any untoward incident of chlorine leak. So unlike from other products, the installed capacity of the Sodium Hypochlorite plant cannot be treated as the production target. Incidentally the production of Sodium Hypochlorite had considerably gone up from 5593 MT in 2001-02 to 8243 MT in 2002-03.
	2.1.24	Company executed the Deed of Agreement on 4-6-2003 as per the MOU signed among NRDC, TCC & RRL dated 21-5-2003 in respect of sale of technology to retrieve the cost of setting up of the pilot plant. We are yet to receive any compensation from NRDC.
	2.1.25 & 2.1.26	Production target is prepared every month in consultation with the Marketing Department. This is also in line with annual production budget. The production target is fixed based on the production capacity and sales planning are done accordingly. While planning the sales the major consideration is the realization/MT and TCC has never sold its production incurring cash loss. Hence by increasing the production, we could reduce the loss. The storage capacities take care of minor fluctuations in movement of end production.
	2.1.27 & 2.1.28	TCCL has been using salt from different vendors in south India and from Gujarat area. The purity level of this Salt always varies and results in variation in consumption of purification chemicals. Unsteady power supply also contributes to variation in consumption of purification chemicals. TCCL had 375 power interruptions during the review period, which is very high compared to other plants.

(1)	(2)	(3)
	2.1.29	Acid production is of commercial grade and the acid concentration varies from 28 to 33.5%. Actual production of HCl is computed on the basis of production of commercial acid. Computation of HCl production on the basis of chlorine utilised is used only for target fixing and other production planning and control activities. The variation estimated by audit comes well within the concentration variation.
	2.1.30 & 2.1.31	Caustic Soda is generally marketed at 48% + —2% globally, which is the accepted customer preference everywhere. In FACT also TCCL have entered into the contract for supply of caustic soda lye at 48%. Due to constrain at company level it was the usual practice to agree for variations up to 40% in unavoidable situations. It may also be noted that mixing Caustic Soda Lye of different concentrations for a final product of specified concentration is a laborious process which include measurement of concentrations accurately, controlling the temperature by cooling etc. Hence considered to be impractical in the industry. The process suggested by audit is not commercial letter proven. To our knowledge this process is not used in any other Caustic Soda Plants other than TCCL.
	2.1.32	Weighing the entire quantity salt consumed on daily basis is not practical due to large quantity involved in this. Also this is not practiced elsewhere. Salt purity always varies widely as TCCL receive salt from different parts of the country. Ageing of the membrane results in higher chlorate level in feed brine and the product Caustic Soda Lye. To keep the chlorate level within the allowed limits, TCCL had to bleed out brine continuously from the system. All the above resulted in marginal increase in consumption of raw salt above the norm.
	2.1.33 & 2.1.34	Barium Carbonate is used to control the sulphate level in the sodium chloride brine solution used for electrolysis. Sulphate level in the salt received from different vendors varies widely and this result in excess consumption of Barium Carbonate for maintaining the stringent brine quality required.

(1)	(2)	(3)
	2.1.35	There were more than 375 power interruptions during the last 5 years and also the plant capacity utilisation was low. Deterioration of membranes was not linear with ageing. All these resulted in higher consumption of HCl for brine purification.
	2.1.36	The consumption of Sulphuric acid is based on the quantity of liquid chlorine produced. The consumption for Sulphuric acid has been fixed as 60 Kg./MT of liquid chlorine produced based on actual plant performance. During the period under reference, both plant I and II together have produced 86.359 MT of liquid chlorine and consumed 4905.810 MT of concentrated sulphuric acid, which gives a specific consumption of 50.91 kg. This comes well within the consumption norms fixed over the years.
	2.1.37	The mercury consumption norm is fixed on the assumption that Plant is operated at 100% installed capacity due various reasons, capacity utilisation of the 27 year sold mercury cell plant was very low. During the last 5 years, there were around 375 power interruptions. All these resulted in unavoidable excess consumption of mercury compared to industrial standard.
	2.1.38	In Caustic Soda industry concentration 30% to 48% through cascading membrane and mercury process is not generally practiced. However, due to delay in commissioning the concentration plant as an innovation, TCC tried to concentrate 30% caustic soda from membrane plant in the ongoing mercury process. This process has many limitations, which include handling higher volume of caustic soda, mercury contaminations and difficulties in controlling the process parameters in the mercury process. Due to the above reasons, concentrating lye in the mercury process is generally not advisable. Also during the period after 1998-99 the production conditions in the mercury plant was not favourable to maximize the concentration process. Hence the loss estimated by audit is only notional.

(1)	(2)	(3)	
2.1.39	Furnace Oil consumption in CCF for flakes production is as given below:		
	<i>Year</i>	<i>LT/MT</i>	
	1998-99	129.4	131.7 Old CCF
	The readings are high because in old CCF plant, the lye concentration was done using furnace oil.		
	1999-2000	117.4	
	2000-01	89.7	New CCF
	2001-02	96.4	
	The readings are within limit.		
2.1.40	The company prepares of budget based on the budgeted production. But the actual consumption varies depending upon the actual production and quality of salt.		
2.1.41	It is the practice followed by the company to negotiate with all the acceptable tenders for supply of salt. It has been experienced by the company that no single supplier can make available the complete requirement of salt of the company. As such negotiating with the lowest tenderer alone is not pragmatic. Negotiating with several parties will enable the company to conclude the contract for the entire requirement, induce a highly competitive environment resulting in a better competitive rate for this major raw material of the company. This strategy has earned dividends for the company and as such the system is being followed now also. Further it is not pragmatic to depend on one single source for the major raw material and dependence on multiple supplies would be advisable.		
2.1.42 & 2.1.43	Freight rate is not the only determining factor in procurement of salt. The availability, the climatic conditions, the quality of the salt produced and the capacity of the supplier to supply the material etc., are also major determining factors in deciding procurement strategies for salt. All salt manufacturers are not producing Industrial grade salt. Among the industrial		

(1)	(2)	(3)
		<p>grade salt manufacturers also, the quality varies in large proportions even from the same manufacturing area. It may be noted that almost all of the salt manufacturers in the south are producing edible grade salt and only a very few are making industrial grade salt. The quality of industrial grade salt varies from manufacturer to manufacturer and also from area to area depending upon several controllable and uncontrollable factors. Hence procurement of Industrial grade salt for the smooth running of the company had to be invariably made from various production areas, incurring freight rates.</p> <p>Ramnad/Valinokkam do not have a truck market and trucks have to invariably come from Madurai, Pollachi and other major truck markets incurring idle run. The situation also worsened as the Chalakkudy Bridge was under repair for several months affecting road transportation and the transporters of Salt from Ramnad/Valinokkam area were reluctant to place sufficient trucks because of this. It may be noted that for transport of salt from Tamilnadu Salt Corporation, Valinokkam, which was undertaken by TCC, the company had to pay an extra rate of Rs. 50 per MT on account of the extra Kms to be covered due to closure of Chalakkudy Bridge. However the other suppliers from Ramnad/Valinokkam were not compensated with the extra transport cost incurred by them. Even at the higher freight rates, sufficient trucks were not available. This compelled the suppliers in Ramnad/Valinokkam area to bring the material to Tuticorin through the coastal route using their own arrangements and to engage regular lorry transport for the movement of the material from Tuticorin.</p> <p>Parvathy Salt Industries have a stockyard at Tuticorin and whenever direct trucks were not available at Valinokkam they used to transport the material from Valinokkam to their Tuticorin stockyard using their own arrangements and they load the material from Tuticorin to their customer's site. Accordingly this company has also received supplies from their Tuticorin stockyard, which should otherwise have come from Valinokkam. It was only justifiable that the freight rate paid by TCCL for transport from Valinokkam for the quantity received from</p>

(1)	(2)	(3)
		<p>Tuticorin stockyard since they have already incurred transportation cost for the transport from Valinokkam to Tuticorin. As such the company has not paid any excess freight payment as pointed out by the Audit. M/s Parvathy Salt Industries had supplied the material from their Valinokkam Works with transshipment at Tuticorin after obtaining TCC's prior permission. Had TCCL not agreed for transshipment TCCL would not have received enough material to run the plant since truck availability was very low in Ramnad/Valinokkam area and our Salt stock position was precarious.</p>
		<p>It is presumed that the suppliers viz., M/s P & Company, M/s Balamurugan Trading Company etc., also had supplied the material with transshipment at Tuticorin since the truck availability was very poor in their respective production areas. It may also be noted that the supply contracts with M/s P & Company, M/s Balamurugan Trading Company etc., were short closed as they had carried out transshipment enroute without taking our prior permission.</p>
		<p>The Salt production in the country and its movement is supervised by the Salt Commissioner of India. For procurement/movement of salt, TCCL had to obtain permission from Salt Department. As per the permit, the suppliers should supply the material from the production area specified in the permit and the Receiving Industry should intimate monthly off take from each production area through the suppliers, to the convened Salt Factory Officers of Government of India. TCCL had been providing the monthly report to the Salt Factory Officers as per the conditions of the permit and there is no query from Salt Factory Officers with respect to the supply against the above orders. Hence it is presumed that the supplies were originated from the production area indicated in the permits as well as in our Purchase Order.</p>
		<p>TCC had been experiencing such transport bottlenecks in the previous years, TCC decided to discontinue the differential freight rate system and commenced finalizing contracts on delivered price basis with effect from 2001.</p>

(1)	(2)	(3)
2.1.44 & 2.1.45	<p>During the year 1998-99, the company implemented the Salt Upgradation Project and the company was prepared to accept impure salt. Hence tenders were invited with liberalized specifications and without any penalty clause. The salt upgradation plant was there in operation for about two years. During the above period the company had purchased only the upgradable quantity salt. The audit has mentioned that in 44 out of 102 purchase orders issued during the period from 1997-98 to 2001-2002, the company had accepted supplies, which does not meet the specification without making any price adjustment. The orders were for procurement of upgradable quality salt and majority of them pertain to the period 1998-99 and were issued when there was an acute scarcity for Industrial Grade Salt. It may be noted that the climatic conditions have a direct impact on the production of Salt and also on the quality of Salt. When both these adversely affected the scarcity condition prevails and it is only natural that the suppliers would give their least preference for quality aspect and take advantage of the situation by jacking up the price and also compromising on the quality. On such situation the company had to accept whatever supplies received, irrespective of the fact that there was no provision in the order for making any price adjustment, as otherwise there would not have been any stock of salt in the company resulting in a continued virtual closure of the company. This would have resulted in considerable loss to the company and by accepting the supplies partly compromising on quality, the company had only reduced the loss, which was warranted by the situation prevailing at that point of time. Later it was found that the cost of upgradation is higher than the price advantage and hence the company recommended procurement of 1st quality of salt incorporating penalty clause, subsequently.</p>	
2.1.46 & 2.1.47	<p>The electricity consumption figures vary from plant to plant depending upon the capacity of the plant, the total production taken, ageing of the cell and other operating parameters. The average national power consumption as per the study conducted by the National Productivity Council shows that 2685 kWh/Ton for membrane plant and 3328 kWh/Ton for Mercury cells.</p>	

(1)	(2)	(3)
	2.1.48, 2.1.49, & 2.1.50	The plant could be operated at a reduced capacity in a steady condition to a certain extent. But zig-zag variation over short duration of few hours would result wastage or product, quality deterioration. Hence the benefit of time-of-usage charges could not be utilized.
	2.1.51	<p>Before planning for increasing production in Membrane Cell Plant, TCCL studied the market potentiality that may arise mainly in South India. TCCL expected/projected growth in major Industries under : (1) Petro Chemicals; (2) Paper Industry; (3) Soap Industry, besides Rayon/ Aluminium. They also expected new Central Government Policies, which shall come to help to above Industries as well Caustic Soda Industry. As envisaged this did not happen; for past 7-8 years. The following main reasons were noticed altogether :</p> <ol style="list-style-type: none"> <li data-bbox="644 1041 1251 1294">1. Central Government instead of imposing/increasing Import duty in Caustic Soda and allied products, gave substantial relief/concessions for importing Caustic Soda. The customs duty was got reduced from 38.5% remained in 1999-2000 to 25% by 2002-03. They also introduced several concessional duty imports under DPEP Books, advance Release order etc. <li data-bbox="644 1310 1251 1496">2. Major consuming Industries like : (1) Grasim Industries, Calicut; (2) Travancore Rayons Ltd., Rayonpuram; (3) South India Viscose Ltd., Coimbatore were closed, during this review period which went against expectation/projections of TCCL. <li data-bbox="644 1512 1251 1742">3. Several Soap Industries under Small/Medium scale sectors had to close down during the review period, due to heavy competition in their final product marketing. Major units like : (1) Kerala Soaps and Oils Ltd., Calicut; (2) Kerala Detergents and Chemicals, Kuttipuram were also closed during this period. Consuming units like :

(1)	(2)	(3)
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(1) Hindustan Lever Ltd., Calicut; (2) Hindustan Lever Ltd., Cochin, reduced their production due to heavy competition in their products. Added to this they were often tempted to switch over to Toilet Soaps/Washing Soaps etc. depending upon market potentiality; on certain months.

4. Anticipated growth under Chemical/Pharmaceuticals/Aluminium Industry did not happen, during past 8-6 years, due to which projected sales volume could not be attained.

On an average, during the period under review, TCCL had achieved a total direct sale of volume on Caustic Soda Lye to Caustic Soda Lye production to the tune of 80%. TCCL had been maintaining direct market share to minimum 80% all these years. This was achieved, even on closure of above major consuming units.

TCCL is meeting the entire requirements of Caustic Soda Lye of all Kerala Industrial Consumers to the maximum extend possible and we are reaching to 100% supply orders from the following major clients: (1) Fertilizers and Chemicals Travancore Ltd.; (2) Kochi Refineries Ltd., Ambalamugal; (3) Hindustan Organic Chemicals Ltd., Ambalamugal; (4) Hindustan Newsprint Ltd., Kottayam; (5) Hindustan Lever Ltd., Kochi and Calicut; (6) Hindustan Insecticides Ltd., Udyogamandal; (7) Kerala Minerals & Metals Ltd., Kollam; (8) Travancore Titanium Products Ltd., Trivandrum; (9) Binani Zinc Ltd., Binanipuram etc.

From major Industrial consumers like: (1) Tamilnadu Newsprint and Papers Ltd., Pugalur; (2) Mysore Paper Mills Ltd., Bhadravathy; (3) Kudremukh Iron Ore Co. Ltd., Kudremukh we are obtaining maximum order quantity along with competing manufacturers, from the nearby states.

TCCL has been following for past several years aggressive marketing strategy and arrange to procure

(1)	(2)	(3)																																																							
		<p>maximum order quantity from consuming Industries directly either domestically or from neighboring states. TCCL is penetrating and arranging to obtain orders to maximum extend possible, based on the realistic and economical prices, which can be afforded.</p> <p>Compared to the sales volume for the year 1997-98, the sale of Caustic Soda Lye had registered substantial increase during the last 5 years. Depending upon yearly production plan, the company had achieved the above increase. During 1998-99 reached to 40439 MT Caustic Soda Lye sale volumes and in 2000-2001 it was 38574 MT based on early-targeted production. Sales volume through traders had never got increased as mentioned below:</p>																																																							
		<table border="1"> <thead> <tr> <th rowspan="2"><i>Product</i></th> <th rowspan="2"><i>Year</i></th> <th colspan="2"><i>Production</i></th> <th><i>Sales</i></th> </tr> <tr> <th><i>TCC MT Total</i></th> <th><i>Dealer TDC/Gem Total</i></th> <th><i>%age</i></th> </tr> </thead> <tbody> <tr> <td>Caustic</td> <td>1998-1999</td> <td>51984</td> <td>8108</td> <td>15</td> </tr> <tr> <td>Soda</td> <td>1999-2000</td> <td>51060</td> <td>7312</td> <td>14</td> </tr> <tr> <td rowspan="3">Lye</td> <td>2000-2001</td> <td>55567</td> <td>8072</td> <td>14</td> </tr> <tr> <td>2001-2002</td> <td>51188</td> <td>7750</td> <td>15</td> </tr> <tr> <td>2002-2003</td> <td>44715</td> <td>7920</td> <td>17</td> </tr> <tr> <td>Liquid</td> <td>1998-1999</td> <td>20155</td> <td>1950</td> <td>9</td> </tr> <tr> <td rowspan="4">Chlorine</td> <td>1999-2000</td> <td>20807</td> <td>2577</td> <td>12</td> </tr> <tr> <td>2000-2001</td> <td>21277</td> <td>4265</td> <td>13</td> </tr> <tr> <td>2001-2002</td> <td>18836</td> <td>2511</td> <td>20</td> </tr> <tr> <td>2002-2003</td> <td>17542</td> <td>2488</td> <td>14</td> </tr> </tbody> </table>			<i>Product</i>	<i>Year</i>	<i>Production</i>		<i>Sales</i>	<i>TCC MT Total</i>	<i>Dealer TDC/Gem Total</i>	<i>%age</i>	Caustic	1998-1999	51984	8108	15	Soda	1999-2000	51060	7312	14	Lye	2000-2001	55567	8072	14	2001-2002	51188	7750	15	2002-2003	44715	7920	17	Liquid	1998-1999	20155	1950	9	Chlorine	1999-2000	20807	2577	12	2000-2001	21277	4265	13	2001-2002	18836	2511	20	2002-2003	17542	2488	14
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2.1.52		<p>From 1998-99 onwards TCCL could achieve higher sales volume, only on getting committed contracts with consuming Industries directly. Because of peculiar nature of product, contract signing of yearly/half yearly/quarterly basis is a necessity. Having committed with Industrial consumers, towards supply of Caustic Soda Lye, as per their schedule on daily/weekly basis, going back without supply shall lead to violation of contract and claim of</p>																																																							

(1)	(2)	(3)
		<p>L/D. Similarly commitment taken for HCl/Chlorine on long-term basis with clients had also to be adhered/honoured. Hence maintaining production of Caustic Soda Lye/Chlorine/HCl against commitment taken monthly had to be strictly followed. Production of Caustic Soda Lye monthly had to be maintained in order to cover demands of Chlorine/HCl with consumers. For safe movement of by-products and fulfilling contracts entered with clients, maintenance of production of Caustic Soda Lye every month is a necessity. Otherwise, any of the by-products shall be in short supply to our clients. Further in case any of the major Industrial consumers like : (1) HNL; (2) KMML; (3) KCPL; (4) CMRL goes for annual shutdown/maintenance in a month, offloading material/ consignments at short duration shall also be difficult, since every consumer shall be got committed with any of the Southern Caustic Soda manufacturers. Hence getting into contracts for all products, for the expected production, taking into consideration of each of the items demands/commitment with the company's clients is a pre-requisite, As such when additional quantity of Caustic Soda Lye is available, it has to be converted into Flakes and market in the demandable region. Requirement of CSF within Kerala is limited as well in Tamil Nadu. Major market for CSF is distributed in Western/Northern region.</p> <p>Further, Caustic Soda is in buyers market. Hence, the company shall be able to obtain realizations equivalent to prevailing market rates; from time to time.</p> <p>Hence price realization for CSF or C.S. Lye will not hold relational trend. TCCL has not seen, any price relation with regard to Caustic Soda Lye, Caustic Soda Flakes, for all these past several years. All the 41 Caustic Soda manufacturers spread over India follow the equalization method of fixing/realizing the rates based on the prevailed market rates. TCCL one among them and hence any special consideration in obtaining better prices for TCC products shall be unimaginable.</p>

(1)	(2)	(3)
	2.1.53	<p>As informed, Caustic Soda is in buyers market for past several years. Tough Competition and price war in disposal of products do exist. Based on the prevailed market prices and comparing to other manufacturers landed rates, ruling in respective regions TCCL had equated the rates applicable to the company's dealers and had realized prices. By maintaining regular production of Caustic Soda Lye each month, in order to fulfill the demands of by-products also TCCL could obtain contribution from such sales. Maintaining the demand of by-products to regular major consumers like : (1) KCPL; (2) CMRL; (3) KMML; (4) IRE etc., had enabled TCCL to get contribution to greater extend in all these years. TCCL had not resorted to such maintenance and sale of by-products, after meeting the demands of our regular customers, had been sold in the nearby states by getting reasonable rates comparing to market rates where other competitors are operating.</p>
	2.1.54	<p>As long as Caustic Soda is in the buyers market, in order to sustain in the market TCCL had to offer material to consumers equating to and based on prevailing market rates, where other competitors are offering consignments. All the Caustic Soda manufacturers are following the above procedures, for past several years. Hence TCCL shall not be able to deviate from this system, since it shall not be judicially right. Hence fixing applicable prices for Caustic Soda and by-products under scientific basis or straight-line formulae shall be impractical. Further AMAI based on market trend and average cost of production do recommend often ceiling price to be followed by manufacturers. In this regard it may be noted that after November 1994 AMAI had not issued or recommended any ceiling rate for Caustic Soda, since they knew such recommendation shall not hold good at the present recessional trend in the market rates for Caustic Soda.</p>

(1)	(2)	(3)
		<p>There shall not be any price linking formulae connecting list price and market prevailed rate. Normally buyers have their choice of price. They do dictate the purchase rate of product.</p> <p>With major Industrial Units like: (1) Kerala Minerals & Metals Ltd., (2) Hindustan Newsprint Ltd.; (3) Indian Rare Earths Ltd.; (4) Tamilnadu Newsprint & Papers Ltd. (5) Mysore Paper Mills Ltd.; (6) Fertilizers & Chemicals Travancore Ltd. etc. TCCL did enter into contract against participation of limited tenders floated by them on ½ yearly or yearly basis. Prices ruling in the market shall be the buyers' considerate price or yardstick. During negotiations, these Industrial consumers take upper hand and the participants have no choice. Any how company does interact mutually and do consult and arrive at consensus on prices and quantity each. Hence while finalizing the prices with Industrial consumers as above TCCL do consider and apply the quantity involved, duration of order, and creditability of party both on payment release and dispatch scheduling.</p> <p>Arriving at a consensus on prices, before and after at major consuming Industries by the southern Caustic Soda manufacturers is being followed for past several years. This is applicable to private sector companies also; in order to get realized better prices in each ad hoc sale deed.</p> <p>As explained earlier, prices shall not be able to be fixed on a rational basis with any trader while selling our all excisable products through traders. Prevailing market rates only can be got realized on sale through them.</p> <p>As long as the item/consignment is convertible, any trader shall not be able to take advantage on pricing, since the end user shall insist for Modvat copy of Invoice on each purchase. Further every consumer is aware of the market rates and hence no trader can cheat them or charge exorbitant rate on supplies.</p>

(1)	(2)	(3)
		<p>The applicable rate towards supply of Caustic Soda Lye to HLL, Ernakulam effective from April 1998-June 1998 was Rs. 8,900 per MT from July 1998 it was got revised to Rs. 9,800 per MT. The rate of Rs. 10750 was implemented from 1-10-1998. At HLL, Ernakulam the monthly consumption is below 175 MT and the prices were fixed on ad hoc basis for 3 months, each.</p> <p>In the case of Grasim Industries, Kozhikode the consumption is above 500/600 MT C.S. Lye (minimum) in each month. Till end April 1998 we had, supply order from Grasim Industries Ltd., and at a price of Rs. 10,120.13 per MT against HLL's basic rate of Rs. 8,900 per MT.</p> <p>Normally the order procurement from Grasim Industries Ltd., is with effect from July 1998. Accordingly TCCL initiated discussion with Grasim Industries by end June 1998. They requested TCCL to continue supply of Caustic Soda Lye at Rs. 1,010.13 per MT from 1-7-1998 provisionally, till finalization of rate to be applied for a year from July 1998. As all other suppliers like: (1) DCW; (2) Chemplast; (3) SPIC, Madras, TCCL and also following we also continued supply at above provisional rate from 1-7-1998.</p> <p>After discussion with other suppliers and later with TCC, Mr. Saboo, Chief Executive of Grasim-offered us a rate of Rs. 8,859 per MT (basic) an equivalent rate on landed basis towards supply of 4000 MT for a year with additional quantity option.</p> <p>As explained, with Grasim it is an early supply order where as with HLL it is on quarterly basis.</p> <p>The contract with Travancore Rayons was signed from 1-4-1997. The prices ruling at the time of negotiation/ finalization with their MD was at higher level and TCCL could obtain a basic rate of Rs. 12,250 per MT. But subsequently market rates started deteriorating. Rayons MD had a personal discussion with MD, TCCCK by end of</p>

(1)	(2)	(3)
	<p data-bbox="485 869 555 898">2.1.55</p>	<p data-bbox="612 539 1249 853">November 1997 and requested to offer concessional rate, in consideration with market prevailed rates. There was request from Government level since, Travancore Rayons was facing financial crisis. In order to tide over this scenario, as a special case, TCCL agreed for a reduction and got committed with them for bulk quantity drawl till May 1998. The market rates for Caustic Soda Lye had dropped substantially from December 1997, and by June 1998 on discussion with them. TCCL could get realized only a price of Rs. 9,850 per MT till May 1999.</p> <p data-bbox="612 875 1249 1458">TCCL entered into long-term contract with M/s CMRL and it was valid till 2003. During April 1998, they reviewed the pricing formulae and deleted certain clauses from existing contract and refixed a firm price of Rs. 1,500 per MT for 1998/99, for drawl of minimum 3000 MT HCl (monthly). As CMRL got lower offers for HCl and abundant supply quantity from other Southern Manufacturers CMRL started renegotiating with TCCL for lowering the rates thereby withdrawing from contractual obligations. When CMRL started restricting the drawl of HCl from TCCL, TCCL called on them and offered concessional prices from 1-6-1998, under separate slab systems necessitating them to lift more quantity from us every month, thereby curtailing drawl from competitors. Market prevailed rates were ruling very low due to which lower concessional prices had to be offered to CMRL even till 5-6-1999 in order to press them to lift higher quantity from TCC.</p> <p data-bbox="612 1480 1249 1671">All the efforts of TCCL to apply escalation clauses of the agreemental terms on CMRL effective from 1-4-1999 became futile and they often negotiated with TCCL for low concessional prices from 4/1999 all the concessional price offers given to CMRL was got permitted by pricing committee and subsequently got ratified by the Board.</p> <p data-bbox="612 1693 1249 1751">As the prevailed market rates started improving, TCCL got revised the prices on CMRL with effect from</p>

(1)	(2)	(3)
		1-10-2000 to Rs. 1,900 and to Rs. 2,000 from 1-4-2002. From 1-7-2002 this was revised to Rs. 2,450 per MT for higher off take above 1500 MT in a month. During the period 4/98 to 5-6-1999, the HCl prevailed market rates were very low and Southern competitors/manufacturers were offloading material at throw away prices.
	2.1.56	Though the average concentration of HCl as per IS is 30-32%, often the production concentration do vary from 30% and certain days it had gone down to 28%-27%. Complaints were there from customers for low purity. Even KCPL had deducted amounts on prorated concentration basis on certain weeks/months. Due to plant operational parameters, on certain occasions concentration can be above 32%. As the pricing is on commercial basis, for concentration above 32% TCCL was not able to procure additional price from customers in which case. TCCL had to compensate for lower purity. During 1998-99 and 2000, TCCL had sold 77323 MT/74360 MT HCl.
	2.1.57 & 2.1.58	The sale of Caustic Soda Lye through retained traders in the neighbouring states could be restricted to below 20% for past several years. In the case of CSF it could not be affected with following reasons : 1. There is very low bulk consuming Industries for CSF in Kerala. Hence major portion of CSF production had to be taken to Western/Northern regions apart certain quantity to Southern States. At Western/Northern regions, major units like : (1) GACL; (2) Indian Rayons; (3) Andhra Sugars (4) HPC; (5) Grasim apart other Southern Caustic Soda manufacturers dominate in sale volume. TCCL's share is very much limited compared to them. Hence, TCCL had to adopt a pricing policy

(1)	(2)	(3)
		<p>equivalent to their landed rates. TCCL also noticed that, consuming Industries situated in Western/Northern regions shall not get committed for material because of timely delivery. All the Southern manufacturers, to best of information are operating in this far away regions through retained traders only. TCCL's efforts to get committed with consumers from Western region had not been fruitful. Hence company did adopt as other Southern manufacturers, to procure sale volume through certain retained traders. During the past 4-5 years, sale volume/production of CSF had increased substantially from that of 3553 MT (1997-98). Even with higher productions dependence on traders for sale of CSF from Western/Northern regional traders, could be restricted to that of earlier periods. For past 2-3 years, TCCL could get improved direct sale from Industrial consumers from Western/Northern States. Every effort is being made to restrict the dependence of traders from Western/Northern region for CSF and we are endeavouring to procure orders from Western/Northern Government Units.</p>
		<p>TCCL is presently regularly preceding orders from following Government Units for past 4-5 years.</p>
		<p>(1) Kudremukh Iron Ore Co. Ltd., Kudremukh (2) GTN Textiles Ltd., Hyderabad. (3) Hindustan Zinc Ltd. (4) Steel Authority of India Ltd., Bhilai (5) Steel Authority of India Ltd., Bokaro (6) Steel Authority of India Ltd., Durgapur (7) National Thermal Power Corporation (all units).</p>

(1)	(2)	(3)
		<p>By arising the Invoices under ultimate consignee name for claiming Cenvat they knew the prices at which material is received by these traders and hence they would not allow the traders to charge prices beyond a certain limit.</p> <p>Industrial consumers like : (1) M.F. Ltd.; (2) MRPL; (3) Karnataka Soap Ltd.; (4) SIB Industries Ltd., Coimbatore, because of their management policy did not favour orders towards supply of Chlorine, despite company's efforts to procure orders. Further, the credit worthiness of such Units was highly bad, for past several years and hence TCCL was not keen in entering into contract with them. This was particularly visible with KSO, Bangalore.</p> <p>The trader is not allowed to serve units of HLL from other states. Further Management of HLL operating from their Head Office, Bombay entertain only manufacturers for procurement of material.</p> <p>TCCL had inferred that KSO, Karnataka owe the trader huge outstanding even now and to liquidate it their management is entertaining the trader with orders. As long as Cenvat is availed by KSO, against the raised Invoices, on the trader (thereby knowing our selling rate) there is no scope that this customer shall favour the trader with higher rate.</p>
	<p>2.1.59, 2.1.60, 2.1.61, & 2.1.62</p>	<p>Company has been following the present marketing arrangements for past so many years. This has been arrived at after many trials evaluations and refinement at different stages from time to time. Board of Directors subsequently evaluated it and decided to continue the present marketing system without disturbing it.</p> <p>TCC's possession of original document of landed properties of TDC valuing Rs. 166 lacs. These documents were verified and got cleared by our Legal Advisors.</p>

(1)	(2)	(3)
		<p>As explained earlier Caustic Soda is in the buyers market even now. Price war and competition exists between Southern Caustic Soda Manufacturers. As there are no major direct consumers apart TNPL/MPM in the neighbouring states (where we have direct supply source) TCCL had to authorize this trader for marketing Caustic Soda Lye in these states to several small scale consuming Units on our behalf. This trader had to compete in domestic markets of other 8 Caustic Soda manufacturers and their nominated traders, normally. As the trader is servicing long distance consumers even at upper Karnataka the exorbitant freight element involved shall be eaten away from the realization obtainable. Further the prevailing market rates were fluctuating highly all these past years and based on it only the above trader was able to contract with us on ad hoc price basis; in each deal. Evolving price formulae linking the prices fixed for traders to that of regular buyers is not possible at such recessional trend in market rates. Based on information's available all the other Caustic Soda Manufacturers are operating and marketing their products on ad hoc sale basis and they do not adopt any price formulae.</p> <p>Prevailing price quotations reveal to greater extend the ruling rates on product. Further journals communications from AMAI gives information on price trend. TCCL do attend AMAI meetings often; where all the participants exchange views on price structure, which is being discussed between pricing committee members. These information exchanged have to be taken as authentic. The imposition of entry tax on Caustic Soda by Tamilnadu had its impact on prevailing market rates. When TCC's Trader wished to maintain company's market share, on Caustic Soda Lye, this aspect on Entry tax levied by Tamilnadu Government had to be taken into consideration while fixing the rate. Our Caustic Soda is a multipoint tax items at Tamilnadu, added to this the entry tax element. Hence while fixing the rate to the trader, and equating to the prevailed rate, TCCL had to consider this additional tax element on them. TCCL had not absorbed any entry tax element in price fixation.</p>

(1)	(2)	(3)
	2.1.63	By maintaining products in Mercury Plant, TCCL could meet the requirement of direct customers in Kerala and neighbouring states and this helped the company in fulfilling the entered contracts in time, lest for non-performance of contractual obligations, they should have levied L/D clauses. Chlorine/HCl, Acid marketed, out of the production in Mercury Plant had its own contribution towards Caustic Soda Sales.
	2.1.64, 2.1.65, 2.1.66, 2.1.67, 2.1.68, & 2.1.69	<p>As though competition exist in the Caustic Soda Market, existence of TCCL in the market depends to a large extent in following a liberal credit policy. Generally in the market credit facility extended by all the Southern Caustic Soda Units and their retained traders are above minimum 45 days credit period. Suppliers like DCW, TPL, CAL etc. had extended liberal credit facility at SIV, which TCCL had, also to equate/follow. In the case of dues from SIV Industries, Coimbatore, though the company has become a sick company, the delcredre agent has assured payment in monthly installment of Rs. 4 lacs each. As on date the total dues from SIV Industries has come down to Rs. 1.98 crore.</p> <p>As regards dishonour of cheques by TDC TCCL could obtain value of the dishonoured cheques by DD, wherever cheques were dishonoured. Moreover, TCC was compensated for the loss of interest on account of dishonour.</p> <p>TDC was being offered from the very beginning of transaction, for higher volume of sales, a credit facility of maximum 60 days and TCCL covered the credit period liability by way of security of document of land deposited by them.</p> <p>Further, in regard to insisting interest on settlement of bills after the due date, it may be noted that the practice of charging interest on delayed payment is not in existence in the Caustic Soda Industry due to tough competition in the market. In the case of documents routed through bank, which are mainly related to Central Public Sector Undertakings, TCCL is unable to insist for interest on delayed payment.</p>

(1)	(2)	(3)
		<p>In view of the adverse market situation, which the Caustic Soda Industry is facing, it is not practical to insist Security Deposit from customers for the value of supplies to be effected.</p>
<p>2.1.70, 2.1.71, 2.1.72, & 2.1.73</p>		<p>It is not correct to say that despite commissioning of the Membrane Plant, no re-organization of the personnel was made.</p>
		<p>The strength fixed for Cell Group of Plants and Mercury Distillation Unit was 85 as per the Memorandum of Settlement dated 16-6-1995. The said strength was reduced to 79 as per Agreement dated 27-4-1999.</p>
		<p>The personnel identified as surplus were utilized in places of workmen on leave and for carrying out emergency works cropped up in operation and maintenance of plant.</p>
		<p>Consequent to implementation of a comprehensive restructuring the approved strength in all the Departments/ Sections was reduced considerably.</p>
		<p>Pursuant to an Agreement with the Contract Worker's Unions, the company has been engaging 33 contract workers for doing sundry works in areas where regular workmen cannot be posted. As the wage rate of these contract workers is comparatively low, i.e., Rs. 140 per day, engaging them on contract basis does not increase Company's wage bill.</p>
		<p>Non-recovery of staff advance: As per requests made by the Unions, recovery of the advance amount paid to the employees in connection with Onam and School Re-opening has been deferred as gesture towards maintaining harmonious relations with the Unions.</p>

(1)	(2)	(3)
		<p>Vide Government Letter No. 16191/H2/2001/Id. dated 8-8-2003 it was directed to recover the advance paid in 10 equal monthly installments. Action is being taken to recover the advances by the company.</p>
		<p>These two Schemes form part of the Long Term settlement of Wages dated 25-3-1997. Benefits as per these Schemes are components of the monthly wages.</p>
	2.1.74 & 2.1.75	<p>The internal audit department has covered all the important activities of the company including that of sales.</p> <p>At present, TCCL is engaging an outside audit firm for the internal audit besides the normal audit carried out by the audit wing of the company.</p>
