

**MINISTRY OF CHEMICALS AND FERTILISERS**

**CHAPTER I**

**The Fertilisers And Chemicals Travancore Limited**

**Working of Udyogmandal Division**

*Highlights*

The production in all plants during 2002–03 to 2006–07 (except Ammonium Sulphate in 2002–03) was lower than installed capacity. The total value of shortfall in production of final products worked out to Rs.160.93 crore.

*(Para 1.7.1.2)*

The continued use of naphtha as feedstock, as opposed to natural gas, adversely affected the financial viability of the Company.

*(Para 1.7.4.1)*

The Company delayed the disposal of accumulated 30 lakh MT of gypsum lying in stock and had forgone much needed additional revenue.

*(Para 1.7.5.5)*

The Company vented 17.26 lakh MT of carbon dioxide into the atmosphere during 2002–03 to 2006–07 which could be marketed for generating additional revenue.

*(Para 1.7.6)*

There had been excess consumption of raw materials/utilities valued at Rs.22.34 crore during the period 2002–03 to 2005–06.

*(Para 1.7.7)*

Delay in commissioning scrubbing system equipment for pollution control led to blocking of Rs.1.31 crore between July 2002 to May 2007 besides defeating the objective of containing the emission.

*(Para 1.7.8.1)*

Failure to install a scrubbing unit (estimated cost Rs.2.6 crore) for reducing excessive emission of sulphur dioxide aggravated air pollution in the area.

*(Para 1.7.8.2)*

*Summary of recommendations*

*The Company should:*

- 1. avoid unplanned shutdown due to controllable factors like shortage of raw material and personnel and when these occur, the circumstances leading to the shutdown should be rigorously reviewed and evaluated and corrective measures taken by designated staff;*
- 2. implement a plan of action whereby surplus carbon dioxide is sold to generate additional revenues for the Company;*

3. *implement a time bound action plan to reduce excess consumption of raw materials and utilities, establish procedures and define staff responsibilities to monitor the implementation; and*
4. *ensure that factors contributing to pollution are controlled and take corrective action in a time bound manner.*

### 1.1 Introduction

The Fertilisers And Chemicals Travancore Limited (Company) was incorporated in September 1943 as a public limited company. It commenced production in 1947, became a Government company in 1960 and the Government of India (GOI) became the major stakeholder in 1962. The authorised share capital of the Company was Rs.1,000 crore and out of paid up capital of Rs.647.07 crore as of 31 March 2007, Rs.637.77 crore was held by GOI.

The Company's production facilities are located at two places, viz., Udyogamandal and Ambalamedu in Kochi (Cochin). Fertilisers like Ammonium Phosphate, intermediary products like Ammonia<sup>1</sup>, Sulphuric Acid and Phosphoric Acid were produced at both locations. Caprolactam, an industrial petrochemical, is manufactured by 50000 Ton *per annum* (TPA) Caprolactam plant at Petrochemical Division at Udyogamandal since 1990-91.

Commercial production in Udyogamandal Division commenced in 1947 for producing Ammonium Sulphate with an installed capacity of 50000 TPA. Subsequently, plants for manufacturing Ammonia, Phosphoric Acid and Sulphuric Acid were set up between 1960 and 1973 as part of expansion and various backward integration programmes.

The Company also established a design and consultancy wing i.e., FACT Engineering and Design Organisation (FEDO) and an equipment fabrication division known as FACT Engineering Works (FEW) in 1965-66.

The Company's product line included 16 intermediary and final products. As of 31 March 2007 the Udyogamandal Division, however, manufactured only Ammonium Phosphate and Ammonium Sulphate as final products and Ammonia, Sulphuric Acid, and Phosphoric Acid as intermediates.

The main Plants in Udyogamandal Division and their capacities as on 31 March 2007 are detailed below:

**Table:1.1**

Plant	Annual Capacity	(000 Ton)
		Actual production in 2006-07
Ammonium Sulphate (682 TPD <sup>2</sup> )	225.00	183.49
Sulphuric Acid (Two plants of 550 TPD and 600 TPD)	379.50	296.77
Phosphoric Acid (100 TPD)	33.00	0.51
Ammonia (990 TPD including 90 TPD Synthesis Gas)	326.70	257.18
Ammonium Phosphate (Two plants of 300 TPD and 150 TPD)	148.50	147.10

<sup>1</sup> Ammonia production in Kochi Division (Ambalamedu) discontinued since February 2003.

<sup>2</sup> Tons per day

### **1.1.1 Products and inputs**

A brief description of the inputs required in various plants of Udyogamandal Division and the products/intermediates manufactured is given below:

#### **(i) Ammonium Phosphate**

Ammonia, Phosphoric Acid and Sulphuric Acid are fed to a reactor that is agitated. The neutralised product, in slurry form, is passed through a rotary drier for solidification as Ammonium Phosphate.

#### **(ii) Ammonium Sulphate**

Ammonia and Synthesis Gas (mixture of Carbon Dioxide and Hydrogen) from Ammonia plant and Sulphur Dioxide and super-concentrated Sulphuric Acid (Oleum) from Sulphuric Acid plant are transferred to the Petrochemical Division of the Company for production of Caprolactam. For each Ton of Caprolactam produced, about 4.5 Ton of Ammonium Sulphate solutions are formed, which are concentrated to form solid crystals.

#### **(iii) Ammonia**

Ammonia is manufactured from Hydrogen (obtained from Naphtha and Steam) and Nitrogen (obtained from air). For every Ton of Ammonia produced, 1.53 Ton of Carbon Dioxide gas is generated as a by-product.

#### **(iv) Sulphuric Acid**

Sulphuric Acid is formed by burning molten and filtered Sulphur with dry air. During the process, Sulphur dioxide and steam are generated. The Sulphur dioxide thus formed is converted to Sulphur Trioxide with catalyst and then dissolved in water/acid to form Sulphuric Acid.

#### **(v) Phosphoric Acid**

Phosphoric Acid is manufactured as a result of the reaction of Rock Phosphate with Sulphuric Acid. Production of every Ton of Phosphoric Acid leaves four to five Ton of Gypsum as a by-product.

#### **(vi) Furnace oil and Steam**

Furnace oil is utilised for production of steam, which in turn is used for producing captive power and for drying fertilisers.

### **1.2 Financial performance**

**1.2.1** The financial performance of the Company and the Udyogamandal Division during 2002-03 to 2006-07 is given below:

Table:1.2

(Rs.in crore)

Year	Company			Udyogamandal Division Profit/(Loss)
	Profit/ (Loss)	Cumulative (Loss)	Operating Profit/(Loss)	
(1)	(2)	(3)	(4)	(5)
2002-03	(200)	(138)	(200.27)	(83.61)
2003-04	(167)	(306)	(167.14)	(82.36)
2004-05	(168)	(506)	(132.96)	(67.28)
2005-06	236	(270)	(118.74)	(71.53)
2006-07	(125)	(395)	(127.74)	(89.76)

The Company, which reported profits from 1983-84 to 1997-98, started incurring losses from 1998-99 due to various factors including borrowing costs for setting up 900 Ton *per day* (TPD) Ammonia Plant at Udyogamandal, steep rise in input prices like Naphtha and Furnace oil, unremunerative realisation from sales, non-operation of plant at higher capacity owing to liquidity crunch, non-availability of alternative feedstock and increase in the prices of other raw materials.

**1.2.2** The GOI sanctioned financial assistance of Rs.226.88 crore in 2001-02 and Rs.87.80 crore in 2002-03 to the Company by waiver of outstanding interest on GOI loan. In April 2006, GOI approved a financial relief package of Rs.670.37 crore effective from 31 March 2005. Consequently, the Company reported a net profit of Rs.235.66 crore in 2005-06. It, however, recorded a loss of Rs.124.73 crore in 2006-07.

### **1.3 Scope of audit and Audit criteria**

The Performance Audit covered the working of the Udyogamandal Division (Division) for the period 2002-03 to 2006-07, with reference to installed capacity, plants' performance data, technical reports, production targets, directives and policies of the Company, agenda notes and minutes of meetings of Board of Directors, annual reports, *etc.*

### **1.4 Audit objectives**

The performance audit was conducted to assess:

- the performance of the plants in the Division with reference to their installed capacities;
- the implementation of action plan for performance improvement;
- the impact of the pricing policy including subsidy on the Company's operations;
- the consumption of material with reference to norms and identify excess consumption leading to losses; and
- compliance with environmental regulations with regard to pollution control, energy conservation, *etc.*

## **1.5 Audit methodology**

The Report was prepared based on a review of relevant agenda notes and board minutes, annual plant reports, cost audit reports and financial statements, technical reports, production reports, energy audit reports, industry journals/bulletins, discussions with various levels of Management and other relevant information. Entry and exit meetings were also held with the Management.

## **1.6 Acknowledgement**

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

## **1.7 Audit findings**

The main reasons for the losses of the Division were high cost of Naphtha as feedstock, impact of changes in fertiliser pricing policies and higher cost of production. The Division was also adversely affected by increases in prices of Sulphur and Rock Phosphate apart from the fact that its plants were old and less efficient.

### **1.7.1 Capacity utilisation**

**1.7.1.1** The details of installed capacity, targeted production and actual production in respect of various Plants in the Division during 2002-03 to 2006-07 are given in **Annexure I**.

**1.7.1.2** The production in all plants (except Ammonium Phosphate in 2002-03) during 2002-03 to 2006-07 was lower than installed capacity. While actual production to installed capacity generally was at about 80 *per cent* in the plants, it was 2 to 47 *per cent* in Phosphoric Acid plant. Shortfall in production of final products was to the extent of 1.95 lakh MT of Ammonium Sulphate and 57955 MT of Ammonium Phosphate. The total value of shortfall in production of final products worked out to Rs.160.93 crore. To meet the shortfall in production, the Company procured 2.16 lakh MT of Sulphuric Acid at a cost of Rs.36.74 crore during 2002-03 to 2006-07. Shortfall in production of Phosphoric Acid was met by import of 21313 MT at a cost of Rs.39.48 crore and through indigenous procurement of 87540 MT at a cost of Rs.168.87 crore for use in the Division during 2002-03 to 2006-07.

Shortfall in production was due to lower stream days<sup>3</sup> actually achieved as compared to the stream days designed (**Annexure II**). The percentage of stream days to the stream days as per design was about 65 *per cent* in all plants except in Phosphoric Acid plant where it was 2 to 47 *per cent* during the five-year period. The reasons were mainly non-maintenance of plant and machinery, equipment failure, shortage of raw materials, electrical and operational faults, shortage of personnel, shortage of lorries and packing bags.

The Management stated (September 2007) that the achievement of Ammonium Phosphate was close to installed capacity in all the years except 2004-05. It attributed the shortfall in production to shortage of raw materials caused by financial crunch.

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<sup>3</sup> Stream days – the days on which the plant concerned was operated.

Stream days designed – maximum number of days for which a plant can be operated in a year.

**Recommendation No. 1.1**

*The Company should avoid unplanned shutdown due to controllable factors like shortage of raw material and personnel and when these occur, the circumstances leading to the shutdown should be rigorously reviewed and evaluated and corrective measures taken by designated staff.*

**1.7.2 Fertiliser pricing policy**

In 1992-93, GOI decontrolled the price of Phosphatic (P) and Potassic (K) fertilisers and introduced an *ad-hoc* price control scheme. Under the new scheme a maximum retail price (MRP) was fixed and a concession was allowed to manufacturers to off set the difference between the standard cost of sales and the MRP. The Scheme provided for concession to fertilizer companies manufacturing Ammonium Phosphate based on nutrient contents of Phosphate and Nitrogen.

Some fertilizer companies use natural gas as feedstock while others use either furnace oil or naphtha. The Company uses naphtha as feedstock. The Tariff Commission assessed in 2004-05 that cost of nutrient Nitrogen (N) was higher in the Company in comparison to other companies using naphtha as feedstock. Similarly, the production cost of ingredient Potash 'P' was also higher.

Since there was no source of either gas or Liquefied Natural Gas (LNG), naphtha remained the only available feedstock in Kerala and imported ammonia could be used only after certain modifications were carried out at the ammonia handling and tank facilities at Cochin Port. The modifications, however, were completed by the Company only in September 2006 and after obtaining financial assistance from GOI and commenced importing ammonia only from December 2006. The Company took seven years and six years, respectively to carry out the modification work to enable operations at low load<sup>4</sup> and facilitate storage and handling facilities for import of Ammonia. As regards the high production cost of ingredient Phosphate, the Company stated that the consumption ratios of its old phosphoric acid plant were high. The Company also stated that increase in cost of nutrient contents of Nitrogen was unavoidable since the cost of naphtha was higher than that of other feedstock.

**1.7.3 Effect of decontrol of Ammonium Sulphate**

**1.7.3.1** When the Company commissioned its caprolactam plant in 1991 it chose a manufacturing process that maximised the generation of Ammonium Sulphate (4.5 ton Ammonium Sulphate for every ton of caprolactam). This was beneficial since Ammonium Sulphate was a controlled product and qualified for subsidy at that point of time. With the decontrol of Ammonium Sulphate in 1994, the production of Ammonium Sulphate as a co-product of caprolactam was no longer beneficial to the Company. However, the Company had to continue to process Ammonium Sulphate solution generated from caprolactam plant. The cost of Ammonium Sulphate solution during 2006-07 was Rs.7,733 *per* MT whereas the sales realisation from Ammonium Sulphate was Rs.7,156 *per* MT.

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<sup>4</sup> *Low load operation of the front end of the Ammonia Plant is to produce synthesis gas and carbon dioxide but without producing Ammonia to meet requirement of its Caprolactam plant. This would enable consumption of imported ammonia whenever available at a lower price as compared to captive production.*

The Management stated (September 2007) that higher cost of production of Ammonium Sulphate was due to high cost of captive Ammonia. The Company had taken steps like resorting to import of Ammonia to reduce costs and their impact would be assessed in subsequent periods.

#### **1.7.4. Conversion of feedstock**

**1.7.4.1** The Company used naphtha as feedstock in its Ammonia plant and furnace oil as fuel in boilers. Most fertiliser companies in India, however, used Natural Gas as feedstock. Gas-based plants had a distinct edge over naphtha-based plants in terms of lower capital cost, lower energy consumption per output, and ability to achieve higher capacity utilisation.

The Company proposes to switch over to LNG as feedstock to save on cost of production of Ammonia by using LNG instead of naphtha. However, this would depend on the proposed LNG Terminal at Kochi that is expected to be completed by February 2011. Thus, the Company has to continue uneconomical operations till completion of the LNG project in 2011 due to non-availability of LNG.

The Management stated (September 2007) that it was exploring various options for using cheaper feedstock to bring down the cost of production as the proposed LNG terminal was getting delayed.

#### **1.7.5 Action Plan for performance improvement**

**1.7.5.1** GOI sanctioned financial assistance of Rs.226.88 crore in 2001–02 and Rs.87.80 crore in 2002–03 to the Company by waiver of outstanding interest on GOI loan for the period from 1998–99 to 2001–02. Despite this relief, the Company continued to incur losses. The Company was referred to the Bureau for Reconstruction of Public Sector Enterprises (BRPSE) in 2004–05 as a sick company under the provisions of Sick Industrial Companies (Special Provisions) Act, 1985. GOI approved (April 2006) a financial relief package of Rs.670.37 crore, comprising waiver of all outstanding interest as on 31 March 2005 amounting to Rs.85.77 crore. It also approved conversion of 50 per cent of the outstanding GOI loan of Rs.584.60 crore as on 31 March 2005, (*i.e.*, Rs.292.30 crore) into equity capital, write off of non-Plan loan of Rs.60 crore and the outstanding balance of GOI loan of Rs.232.30 crore as on 31 March 2005.

The Company submitted (February/March 2005) an Action Plan to BRPSE/GOI that spelt out certain short-term, medium term and long-term measures to improve its performance. Some of key measures included in the Plan and action taken by the Company are discussed below:

**Short-term measures:** The short-term measures contemplated critical maintenance of both Divisions of the Company and raising additional working capital loan of Rs.200 crore to ensure sustained production at optimum level. The Company was also to take measures to institute a tie-up to ensure uninterrupted supply of inputs *i.e.*, Sulphuric Acid and Phosphoric Acid. The Ammonia Plant was to be improved for low load operation to take advantage of the lower cost of imported ammonia. The objective of low load operation was to produce synthesis gas and carbon dioxide at a rate that would just meet the requirements of its caprolactam production to enable maximum utilisation of imported ammonia, whenever available at a lower price as compared to captive production, and thereby reduce the cost of production.

**Medium term measures:** These measures included centralisation of departments through organisational restructuring; redeployment and retaining of manpower on continuous basis to ensure effective succession planning. In addition, captive Phosphoric Acid plant capacity was to be enhanced and a switch over to LNG feedstock from 2009–10 was also contemplated.

**Long term measures:** The long-term measure contemplated in the Action Plan was the disposal of gypsum through a project on Build Operate Own and Transfer (BOOT) basis or possible joint venture.

#### ***Status of implementation of Action Plan***

Audit reviewed implementation of the measures contemplated in the Action Plan. The findings are discussed below:

**1.7.5.2** The Company prepares division-wise annual maintenance plans in advance including major repairs for jobs to be undertaken during a year. The works under the annual maintenance plan, which were required for continuous operations were prioritised and carried out subject to availability of funds. The remaining works were carried over to the next annual maintenance period. During the period 2002-03 to 2006-07 the Company incurred an average expenditure of Rs.8.49 crore *per annum* towards repairs and maintenance of the plant and machinery. This constituted 2.6 *per cent* of the annual operating expenditure. However, it was observed that due to paucity of funds revamping/replacement was carried out as and when an equipment malfunctioned rather than complying with annual maintenance. For instance, instead of undertaking annual repairs of the damaged wooden cooling towers in the three plants, these were replaced (August 2005/November 2005) with new wooden structures at a total cost of Rs.1.91 crore after they collapsed during 2004-05.

The Management stated (September 2007) that maintenance works were regularly carried out and due to financial constraints, high value works like rebuilding of cooling towers, even though envisaged, were kept in abeyance. The fact remains that Company's non-adherence to carrying out maintenance activities as per plan adversely affected the operations of the plants.

**1.7.5.3** The production of Ammonia in the 900 TPD plant was uneconomical since its commissioning because of the high cost of naphtha and furnace oil. As long as the variable cost of captive ammonia was cheaper than the cost of imported ammonia, it would be economical to operate the plant. But the variable cost of captive ammonia (Rs.14,916/MT) during 2004–05 exceeded the cost of imported ammonia (Rs.11,865/MT). Given the need to use imported ammonia and reduce its captive production, the Company decided (1999-2000) to carry out certain modifications to the existing facilities to enable the plant operations at a low load of 10 *per cent* and use imported ammonia but did not actively implement it till 2006-07. The modification works were completed in May 2007. There was also inordinate delay in completing the modification to the ammonia storage and handling facility at Cochin Port to enable import of ammonia. The work was completed only in September 2006.

The Management stated (September 2007) that considerable work was involved in modifying the ammonia plant to operate at low load. This could be completed and trial run was taken only in June 2007. However, abnormal delay in commencing the low load operation of the ammonia plant and carrying out modification work to facilitate storage



and handling of imported ammonia resulted in the Division continuing to operate the plant with captive ammonia and the savings through use of cheaper imported ammonia could not be achieved.

**1.7.5.4** Centralisation of personnel was completed in Materials, Personnel and Finance Departments. In respect of other departments, the work was in progress. Redeployment of manpower was yet to be undertaken (October 2007). As against a sanctioned strength of 239 managers and 877 personnel, the Division employed 190 managers and 1097 non-managerial staff respectively (March 2007), leading to an excess of 220 non-managerial staff. This was despite separation of 377 personnel (95 managers and 282 non-managers) under the Voluntary Retirement Scheme during the period from 2002–03 to 2006–07.

The Management stated (September 2007) that the surplus manpower was mainly in unskilled categories arising out of outsourcing of canteen facilities, loading, *etc.* The fact remains that the surplus manpower was yet to be redeployed (December 2007).

**1.7.5.5** For disposal of over 30 lakh MT gypsum held in Company premises, the Action Plan envisaged exploration of possibilities of inviting other parties on a BOOT basis for manufacturing bricks and building materials. Apart from calling for expressions of interest from interested parties for setting up manufacturing facilities in November 2005, no progress had since been made and the accumulated gypsum was yet to be disposed off (October 2007).

The Management stated (September 2007) that Gypsum sales had increased and that various options for joint ventures, *etc.*, were being pursued. However, 30 lakh MT gypsum was awaiting disposal as on 31 October 2007, and the Company had not so far finalised any joint venture arrangements.

**1.7.5.6** While the Action Plan had envisaged enhancement of the capacity of the captive Phosphoric Acid plant, even the existing capacity was not fully utilised and Phosphoric Acid produced during 2006–07 was less than even two *per cent* of the installed capacity.

The Management stated (September 2007) that it was cheaper to outsource phosphoric acid than to produce it at the Division. Yet, the Company itself had proposed to enhance Phosphoric Acid capacity in its Action Plan submitted to BRPSE/GOI in March 2005.

**1.7.5.7** The Company had projected a marginal profit for the year 2006–07 whereas it incurred a loss of Rs.124.73 crore.

Therefore, the Company was unable to effectively implement key components of the action plan with regard to capacity utilisation, consumption of raw materials and utilities and to address issues related to the high cost of production.

The Management attributed (September 2007) the loss to increase in prices of raw materials over and above the projections made to BRPSE. The reply does not, however, address other relevant factors like high down time, excess consumption of materials and utilities.

**1.7.6** The projections to BRPSE/GOI did not address revenue generating measures *viz.*, disposal of carbon dioxide vented into the atmosphere as discussed below:

The 900 TPD Ammonia plant of the Division generated 18.70 lakh MT carbon dioxide during 2002-03 to 2006-07. The Company sold 53720 MT in the same period to nearby units at a price ranging between Rs.2,000 and Rs.2,050 per MT and 90100 MT was

internally consumed in the production of caprolactam. The remaining 17.26 MT of carbon dioxide was vented into the atmosphere, which apart from adding to ecological pollution was a loss of revenue. Audit had recommended in February 2005 that the Company should explore the possibility of marketing the carbon dioxide that it vented to generate additional revenue. It was only in December 2006 that the Company decided to call for expressions of interest for outright purchase of carbon dioxide/processing (including purification and conversion to liquid carbon dioxide and/or dry ice). Though two parties expressed interest, the Company was yet to take final action on the offers (October 2007).

The Management stated (September 2007) that excess carbon dioxide would not be available in the near future as the ammonia plant was under shut down. In the event of the plant being operated at rated capacity, the disposal of carbon dioxide would be explored. However, as mentioned earlier the Company had already vented 17.26 lakh MT carbon dioxide during 2002-03 to 2006-07 and had not seriously entered into any agreement to sell its vented carbon dioxide till such time as the plant was shut down and earned additional revenue.

During discussions (October 2007) the Management, while agreeing with Audit, stated that it would explore all possible options to market the excess carbon dioxide so as to generate revenues.

***Recommendation No. 1.2***

***The Company should implement a plan of action whereby surplus carbon dioxide is sold to generate additional revenues for the Company.***

***1.7.7 Consumption of raw materials and utilities***

The Company had not reviewed the consumption of raw material/utilities so as to revise its consumption norms/standards. The Cost Auditors analysed the consumption of certain raw material/utilities by the various plants with reference to the actuals for the previous year and reported that the standards fixed by the Company for consumption of raw material/utilities were on the liberal side. The value of excess consumption during the period 2002-03 to 2005-06 as calculated by the Cost Auditors was Rs.22.34 crore as shown in ***Annexure III***. This was mainly due to recurring excess consumption of steam, power and furnace oil. The Company in its reply to the Cost Auditors stated that excess consumption was due to low load operation, minimum maintenance of old plants due to financial crunch, intermittent stoppage, startup and quality of sulphur. The remedial measures, if any, taken by the Company to reduce the excess consumption were not on record.

The Management, while confirming the cost figures given in ***Annexure III***, stated (September 2007) that critical maintenance activities were identified and carried out during annual turn rounds (ATRs), to ensure availability of plants and machineries for continuous operations. However, running of plants at lower capacities due to financial crunch adversely affected the consumption ratios.

**Recommendation No. 1.3**

*The Company should implement a time bound action plan to reduce excess consumption of raw materials and utilities, establish procedures and define staff responsibilities to monitor the implementation.*

**1.7.8 Pollution control**

**1.7.8.1 Delay in commissioning of scrubbing system**

The Company procured (July 2002) equipment worth Rs.1.32 crore for installation of a scrubbing system in the ammonium phosphate plant for pollution control. This was, however, not utilised at all due to technical problems such as failure of fans and blowers and despite efforts by the equipment supplier to rectify the defects, the system failed. As a result, the fluorine-emission level was 88 mg/Nm<sup>3</sup> as against 10 mg/Nm<sup>3</sup> fixed by the Pollution Control Board. The Company could rectify the system and put it in service only in June 2007. Delay in commissioning the equipment defeated the objective of containing the emission levels during 2003-04 to 2006-07.

The Management stated (September 2007) that several modifications were to be carried out to the scrubbing system before commissioning.

**1.7.8.2 Failure to control excessive emission of sulphur dioxide**

It was proposed, in August 2003, to install a Scrubbing unit (estimated cost Rs.2.6 crore) to reduce the excessive emission of sulphur dioxide during start-up of sulphuric acid plant. This was yet to be implemented (November 2007). The delay aggravated air pollution in the area and led to complaints from local residents and associations. With installation of a proper system, sulphur dioxide could be retrieved and its emission controlled.

The Management stated (September 2007) that non-installation of the scrubber system was due to the financial crunch and that the Scrubbing unit would be installed in November 2007.

**Recommendation No. 1.4**

*The Company should ensure that factors contributing to pollution are controlled and take corrective action in a time bound manner.*

**1.8. Conclusion**

The present circumstances in which the Company is operating appear unlikely to be economical, efficient and effective. The continued dependence on high cost naphtha as feedstock has finally led to shutting down the ammonia plant at Udyogamandal Division, since its operation is not viable. On the other hand, increases in input prices like sulphur and rock phosphate have also adversely affected the Company. These increased input prices, coupled with excess consumption of material and aging plants, have only compounded the Company's problems and adversely restricted its viable operations. Even if the LNG Terminal were to be commissioned in 2011 as expected, the Company's future in the interim period is uncertain. It would be noted that the financial relief package granted by Government of India was mainly write-off of loans/interest and

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conversion of some loans to equity which brought no relief by way of desperately required infusion of funds to enable the Company to meet its working capital needs and implement a plan or action to re-generate its plants or equipment and restructure its operations. In view of all these factors, alternate measures would be required to revive the Company's fortunes.

The matter was reported to the Ministry in January 2008; reply was awaited