REPORT
OF THE
COMPTROLLER AND AUDITOR GENERAL OF INDIA

FOR THE YEAR ENDED
31 MARCH 1989

NO. 2

(COMMERCIAL)

GOVERNMENT OF WEST BENGAL

DURGAPUR CHEMICALS LIMITED

E R R A T A

Report of the Comptroller and Auditor General of India for the year 1988-89 (Commercial) - Government of West Bengal (No.2)

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PREFACE

This Report of the Comptroller and Auditor General of India containing a review on Durgapur Chemicals Limited has been prepared for submission to the Government of West Bengal for presentation to the Legislature under section 19A of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971. The points mentioned in the review are those which came to the notice during test audit.

2. The general view and results of audit of Government Companies and Statutory Corporations including West Bengal State Electricity Board are contained in the Report of Comptroller and Auditor General of India for the year ended 31 March 1989—No. 3 (Commercial)—Government of West Bengal to be submitted to Government for presentation to the Legislature under the Act, *ibid.*

OVERVIEW

Durgapur Chemicals Limited incorporated in July 1963 as a wholly owned Government company has been operating a chemical project comprising mainly phenol plant, caustic chlorine plant, pentachlorophenol plant and phthalic anhydride plant.

(Paragraph 1)

The plants are inter-related and the phenol plant is the nucleus of all the plants. Plagued by inherent defects and obsolete technology, the phenol plant has been sick *ab initio* adversely affecting the operation of all the related plants. The phthalic anhydride plant also could not run well due to outdated technology. Lack of preventive maintenance also affected the flow of production. The capacity utilisation in these plants during the five years up to 1988-89 ranged between 26 *per cent* and 67 *per cent* in the case of caustic chlorine plant, zero and 28 *per cent* in the case of phthalic anhydride plant, 9 and 14 *per cent* in the case of pentachlorophenol plant and less than 1 *per cent* in the case of phenol plant.

The project was studied and its problems identified by various experts/committees from time to time, but no action was taken to improve the viability of the project.

(Paragraphs 6 and 6.1)

The Company's annual losses increased from Rs. 574·58 lakhs in 1984-85 to Rs. 1286·58 lakhs in 1988-89 and the accumulated loss as on 31st March, 1989 was Rs. 7901·25 lakhs.

(Paragraphs 15.1 and 15.2)

Owing to lack of generation of internal resources, the Company was unable to repay the loans. The debt (including interest) outstanding at the end of March 1989 was Rs. 4715·77 lakhs.

(Paragraph 5.2)

The labour force employed by the Company, against the norms of 700 men, was excessive and it fell marginally from 1137 in 1984-85 to 1088 in 1988-89. The value of production did not cover the variable costs let alone the full cost.

(Paragraphs 12 and 14)

Prices fixed by the Company for its products were generally lower than the market prices and these were not constantly reviewed. Though after adverse criticism by the Task Force Committee these were revised upwards, the prices were still low compared to market prices.

(Paragraph 8.3)

Rectification and renovation jobs costing Rs. 330 lakhs were undertaken by the Company without having much effect on the production, whereas a sum of Rs. 13·73 lakhs was spent in 1983-85 on constructing an overhead tank for the phenol plant which did not work either before or after the installation.

(Paragraphs 6.5.1 and 6.2(c)(iii)

The Company has six plants costing Rs. 250·69 lakhs which became idle between 1968 and 1983 for various reasons but have not been disposed of.

Working capital of Rs. 57·65 lakhs was locked up in non-moving stores.

(Paragraph 11)

The Company's plants are accident prone. A committee appointed by the Government after a big explosion in the caustic chlorine plant in 1987 had suggested several safety measures most of which have not been adopted due to lack of funds.

(Paragraph 17)

The Company's accounts were in arrears. The accounts of 1985-86 were finalised only in 1989.

(Paragraph 18.6)

DURGAPUR CHEMICALS LIMITED

1. Introduction

Durgapur Chemicals Limited was incorporated on 31st July, 1963 for taking over a chemical project sponsored and developed by the State Government jointly with two companies in private sector to undertake manufacture and sale of chemicals, drugs, explosives, ammunition, fats, fertilisers and organic intermediaries, mining natural deposits such as salt, soda and other chemical substances. As approved by Government in December 1988, the purchase consideration for the assets and liabilities transferred to the Company in September 1963 was finalised at Rs. 34·52 lakhs. Out of this, an amount of Rs. 34·50 lakhs was treated as contribution of Government towards equity capital of the Company. The balance Rs. 0·02 lakh was payable in cash to Government by the Company within one month from the date of execution of a deed of conveyance with regard to transfer. The Company has not executed the transfer deed so far (December 1989).

2. Objects

The following were, *inter alia,* the main objects envisaged in the Memorandum of Association:

(*i*) to carry on all kinds of business of chemical manufacturers, exporters, importers and dealers in heavy chemicals and other preparations, etc.;

(*ii*) to carry on trade or business of manufacturers of and dealers in explosives, ammunitions, fireworks for military, sporting, mining or industrial purposes or for petro-chemical display, etc;

(*iii*) to carry on trade or business of manufacturers of manures, paper pulp, paper glass, sanitary and disinfecting preparations, etc.;

(*iv*) to own, prospect for, explore, acquire by lease, licence, purchase or otherwise open, work, develop and maintain natural deposits of salt, brine, natron, soda, kieselguhr nitrates and other chemical substances;

(*v*) to refine, treat and render merchantable and fit for use natural deposits of salt, brine, natron, soda, kieselguhr nitrates and other chemical substances; and

(*vi*) to manufacture, prepare and treat quarriable and mineral substances or products of all kinds obtained as aforesaid for sale or use or for manufacturing, etc.

The activities of the Company were, however, confined to the manufacture of phthalic anhydride, caustic soda lye, liquid chlorine, phenol, monochlorobenzene (MCB), pentachlorophenol (PCP), sodium pentachlorophenate (SPCP), etc.

3. **Scope of Audit**

The comprehensive appraisal of the Company was included in section II of the Reports of the Comptroller and Auditor-General of India for the years 1972-73 (Commercial) and 1981-82 (Commercial). The earlier Report was discussed (1977-79) by the Committee On Public Undertakings (COPU) in its eighth Report presented to the State Legislature on 30th March, 1979 while the other was yet to be discussed (December 1989). Action on the recommendations of the Committee on the earlier Report is yet to be taken by Government/Company (December 1989). The working of the Company during the five years up to 31st March, 1989 was reviewed during the period from March to June 1989 and the results are set out in the succeeding paragraphs.

4. **Organisational set-up**

The Company is managed by a Board consisting of seven directors, all of them nominated by Government. One of the directors was permitted to act as Chairman of the Board of Directors. The whole-time Managing Director is the Chief Executive of the Company. During the last nine years, three incumbents functioned as Managing Director or acting Managing Director. The Managing Director is assisted by other executives, none of whom is a member of the Board of Directors.

The organisation chart of the Company as on 31st March, 1989 revealed that out of 141 posts of executive or supervisory level officers, 56 remained vacant. Of these, 31 posts related to technical works.

5. **Funding**

5.1 *Capital*

Against the authorised capital of Rs. 5 crores, the paid-up capital (excluding share deposit of Rs. 34·50 lakhs representing the purchase consideration of assets transferred to it) as on 31st

March, 1989 stood at Rs. 474·81 lakhs wholly subscribed by Government. The Company could not issue shares against aforesaid deposit of Rs. 34·50 lakhs held since 1977-78 as that would have exceeded its authorised capital by Rs. 9·31 lakhs. The Company had not also taken steps towards alteration of capital clause of the Memorandum of Association in order to give effect to the settlement of purchase consideration already approved by Government in December 1988.

5.2 *Borrowings*

The Company obtained from time to time unsecured loans from Government, the outstanding amount of which as on 31st March, 1989 was Rs. 4,435·38 lakhs towards principal and Rs. 2,084·15 lakhs towards interest. The Company had not paid any amount of principal due for payment or interest on the loans and had not also worked out overdue principal as on 31st March 1989 (August 1989).

The Company also obtained institutional finance of Rs. 133 29 lakhs from United Commercial Bank from time to time up to 1978-79 for revamping programme against guarantee by Government for payment of interest and repayment of principal. The interest was calculated at compound rate up to 31st March, 1985 and at simple interest rate thereafter. The amount outstanding (including simple interest of Rs. 92·57 lakhs from 1st April, 1985) as on 31st March, 1989 was Rs. 280·39 lakhs, after payment of Rs. 290 lakhs up to 1986-87 from out of the loans obtained from Government for this purpose. The system of seeking institutional finance to relieve pressure on Government funds has proved self-defeating due to inability of the Company to generate funds for the purpose. The institutional loans had to be repaid by drawing upon the Government resources which were also not repaid both as regards principal and interest.

The debt equity ratio of the Company during the three years up to 1988-89 was 5·9:1, 9·0:1 and 9·8:1. The debt equity ratio continued to be adverse mainly because of investment of Government in the form of loans (to bear revenue losses and incur capital expenditure).

5.3 *Cash credit arrangement*

The Company had cash credit arrangement with United Commercial Bank up to a limit of Rs. 75 lakhs against hypothecation of stock for meeting its working capital requirements.

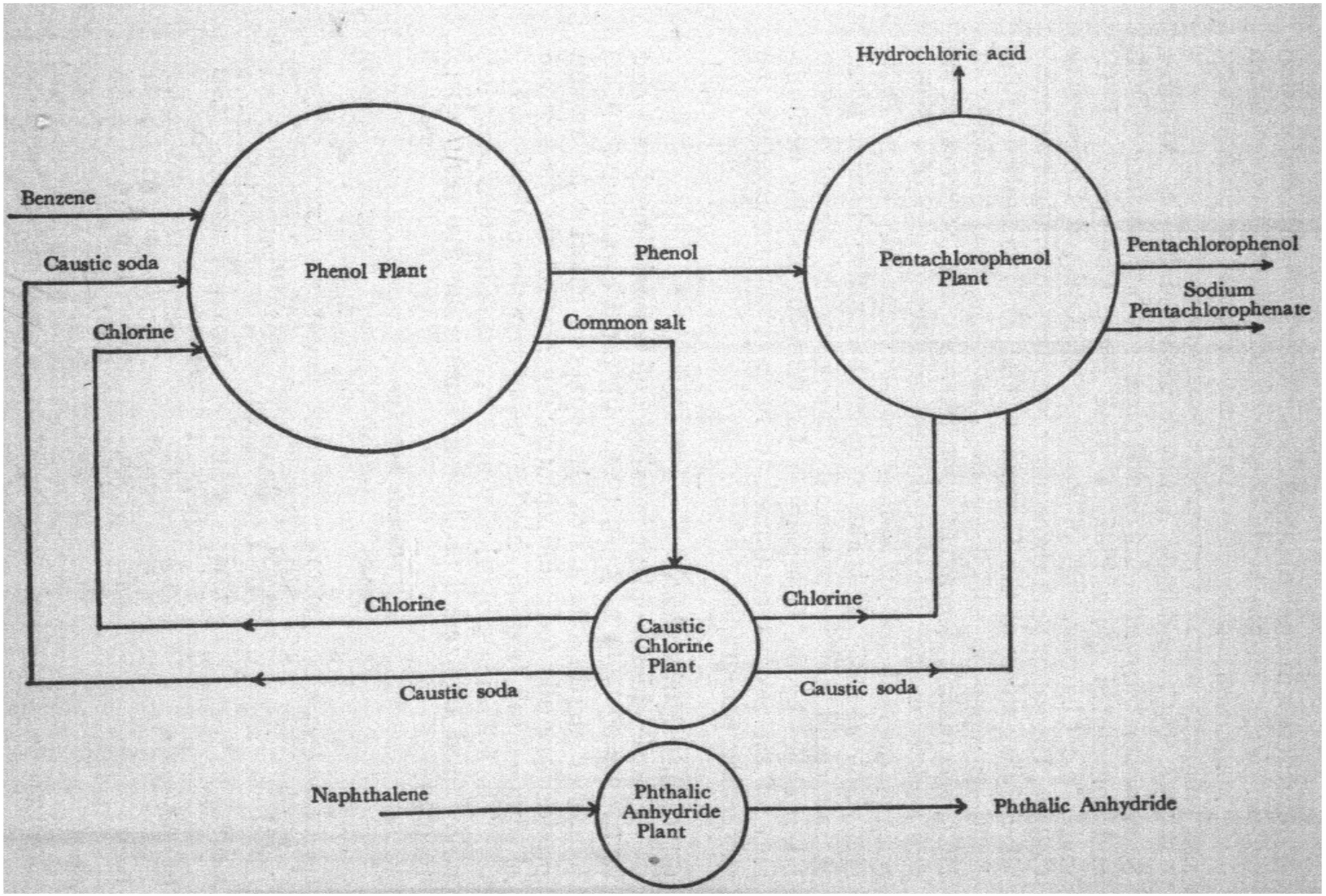
The amount payable to the bank including interest as on 31st March, 1989 was Rs 62·52 lakhs.

6. **Production performance**

The Company's chemical project was conceived as long back as July 1961 with the collaboration of a French firm mainly to utilise benzene and naphthalene available from the coke oven plants of The Durgapur Projects Limited and neighbouring steel plants . Phenol from benzene and phthalic anhydride from naphthalene were to be manufactured in the project which comprised mainly phonol plant, caustic chlorine plant, pentachlorophenol plant and phthalic anhydride plant.

The main inputs required for manufacture of phenol are benzene, chlorine and caustic soda. Of these the latter two are produced in caustic chlorine plant using salt obtained as a by-product from phenol plant. The phenol along with chlorine and caustic soda is used in pentachlorophenol plant to produce pentachlorophenol and sodium pentachlorophenate. Thus, the phenol plant formed the nucleus of all the above plants and operation and viability of the project itself depended on it. A diagram showing the flow of main inputs and the outputs obtained in the respective plants is given at page 6. But, the phenol plant since its inception never ran above 11 *per cent* of capacity. Consequently, (*i*) the caustic chlorine plant for salt and the pentachlorophenol plant for phenol had to depend on market, (*ii*) the chlorine produced by the caustic chlorine plant could neither be used nor stored due to lack of market resulting in curtailment of chlorine production, and (*iii*) alongwith chlorine, production of caustic soda had also to be curtailed though it was marketable. Because of the poor operation of the phenol plant and truncated operation of other plants, the Company has been sustaining heavy losses.

The Standing Advisory Committee (SAC) on Government Corporations, Development and Planning Department of State Government in the course of their normal review of performance of the Company observed (March 1987) "many committees were set up to investigate the cause of poor performance of DCL. Its problems are known and identified. Yet the problems continue to linger on. The salient features of these reports are: (*i*) DCL started as a sick unit since inception, and (*ii*) contributing factor like overcpitalisation with a depressing effect on its economy from the very beginning; inherent defects in designs and materials


Hydrochloric acid
Benzene
Caustic soda
Chlorine
Phenol Plant
Phenol
Common salt
Pentachlorophenol Plant
Pentachlorophenol
Sodium Pentachlorophenate
Chlorine
Caustic Chlorine Plant
Chlorine
Caustic soda
Caustic soda
Naphthalene
Phthalic Anhydride Plant
Phthalic Anhydride

of construction in some plants and guarantee tests, inherent process deficiencies in certain areas despite which the units were taken over, non-utilisation of some vital units affected its profitability; and failure to organise preventive maintenance".

The SAC considered a report prepared by its Member Secretary on the continuing dismal picture of performance of DCL and constituted (July 1987) a Task Force Committee (TFC) under the Chairmanship of Professor of Regional Engineering College, Durgapur with three other members to conduct an overall viability study of the Company. The TFC submitted (June 1988) its report in which it stated, *inter alia*, that "viability of DCL was mainly dependent upon phenol plant. Selection of an outdated technology for phenol plant and acceptance of a defective/non-operable plant without proper trial run made DCL non-viable *ab initio*. This also crippled the captive chlorine plant as salt could not be produced". No remedial measures were taken either by the Company or Government and the performance of the project continued to be poor as discussed in the succeeding paragraphs.

6.1 *Caustic chlorine plant*

Caustic chlorine plant installed and commissioned at a cost of Rs. 274·82 lakhs in April 1968 with rated capacity of 10,500 tonnes of caustic soda and 8,916 tonnes of chlorine *per* annum produces caustic soda and chlorine by electrolytic dissociation of common salt (sodium chloride) using mercury cathode cell.

The following table gives year-wise data of installed capacity, target fixed and actual production during the five years up to 1988-89:

	1984-85	1985-86	1986-87	1987-88	1988 89
			(In tonnes)		
Caustic Soda Lye					
Installed capacity	10,500 (67)	10,500 (58)	10,500 (46)	10,500 (39)	10,500 (26)
Target	10,500 (67)	10,900 (56)	10,350 (47)	11,000 (37)	NA
Actual	7,037	6,104	4,853	4,098	2,683
Chlorine					
Installed capacity	8,916 (46)	8,916 (37)	8,916 (27)	8,916 (23)	8,916 (16)
Target	8,000 (52)	8,000 (41)	2,400 (101)	6,600 (31)	NA
Actual	4,123	3,300	2,427	2,071	1,389

Note: The figures in brackets represent percentage of actual production to installed capacity/target.

The reasons for the declining trend of both the products attributed by the Board from time to time were as under:

(1) The volume of production of caustic soda lye could not be increased as disposal of chlorine posed a serious problem either by sale or by captive consumption through monochlorobenzene and pentachlorophenol route.

(2) Shut-down of the plant for change of graphite anode and balancing equipment in 1984-85.

(3) Explosion in 33 *per cent* secondary cells and general deterioration in cell condition in 1986-87.

(4) Utterly inadequate maintenance coupled with lack of timely action further deteriorating the plant condition in 1987-88.

(5) Suspension of operation of the plant for three and a half months owing to chlorine gas leakage from storage tank in June 1987.

(6) Constraint in the availability of salt (raw material for the plant) in 1988-89.

It was also noticed in audit that there was no preventive maintenance and the repair and maintenance in the plant was done only when it became inescapably necessary (paragraph 6.5 *infra*).

6.2 *Phenol plant*

6.2.1 The phenol plant which was installed and commissioned at a cost of Rs. 260 lakhs (including foreign exchange components of Rs. 181·36 lakhs) in March 1970 and was handed over to the Company in May 1970, had the following five units:

(*i*) Monochlorobenzene unit
(*ii*) Phenol distillation unit
(*iii*) High pressure synthesis unit
(*iv*) Salt recovery unit and
(*v*) Residue recovery unit

The phenol plant meant for producing mainly two products—phenol and monochlorobenzene, was, during the period under review, confined to the production of the latter only.

6.2.2 *Production of monochlorobenzene*

The actual production of monochlorobenzene against the

installed capacity and target of production is given in the table below:

	1984-85	1985-86	1986-87	1987-88	1988-89
			(In tonnes)		
Installed capacity	10,000 (17)	10,000 (17)	10,000 (13)	10,000 (7)	10,000 (5)
Target	5,000 (33)	5,000 (33)	6,000 (21)	3,000 (22)	— —
Actual	1,657	1,661	1,266	672	525

The above table shows that the production of MCB is insignificant compared to its installed capacity. According to the Board (July 1986), the Company was producing MCB as an intermediary product for phenol.

Hindusthan Organic Chemicals, a Bombay based customer who was lifting 300 tonnes of MCB *per* month, suspended its purchase from the Company from mid-June 1986 without assigning any reason. As enquired by the Company, the said customer got a supplier at Bombay assuring supply at a cheaper rate.

Since the Company could not create a steady market for its products, it affected production of MCB. The Management stated (May 1987) that the production of MCB had been affected adversely due to lack of market. Erratic and irregular availability of benzene as stated by the Management (April 1989) stood in the way of interruption-free operation of MCB plant (Paragraph 7.4 *infra*).

6.2.3 *Production of phenol*

Though the rated capacity of the phenol plant was 6,600 tonnes *per* annum, there was no production of phenol during 1985-86 to 1988-89 and even when there was production in the 6 years up to 1984-85, it did not reach even 1·25 *per cent* of capacity.

The factors responsible for nil/insignificant capacity utilisation as revealed from the records were as under:

(*i*) non-operation of "high pressure (phenol) synthesis unit" since inception mainly owing to break-down of high pressure pumps, leaking gaskets of autoclaves and failure of nickel gasket joints on heat exchangers;

Note: The figures in brackets represent percentage of actual production to installed capacity/target.

(*ii*) non-functioning of salt recovery unit owing to non-functioning of the phenol plant;

(*iii*) high consumption of benzene due to original defect in the plant.

The Management of the Company being of the opinion that the existing plant was outdated and less efficient than other modern plants got an in-depth study made in 1980-81. They discussed the issue with the manufacturer of the plant for increasing the plant capacity and reduction of process loss. For improvement of plant capacity and rectification of leaks, etc., a sum of Rs. 7·64 lakhs was spent from 1971-72 to 1983-84.

As the H-25 tank of phenol plant in the high pressure synthesis unit installed and in use since commissioning of the plant, got deteriorated and patch repairing was not enough, a new tank was installed and put into use in May 1984 at a cost of Rs. 13·73 lakhs. Some defects were noticed (July 1984) in the welding joints which were rectified by the supplier by April 1985. However, the Company could not conduct the completion test within the guarantee period which expired by May 1985. During 1984-85, after installation of H-25 tank, only 10 tonnes of phenol could be produced in trial run of the plant. The plant was not brought under commercial operation thereafter.

In this connection TFC observed (June 1988) "Expert many times suggested abandonment of phenol plant except Monochlorobenzene section. Yet, surprisingly Rs. 13·83 lakhs was spent in 1984-85 on high pressure unit, which could never operate".

The Board stated (July 1986) that phenol plant could never be operated satisfactorily owing to faulty design and virtually closed down in 1983 mainly because of highly uneconomic operation cost. The plant became technically obsolete and continuous operation had become almost impossible.

Actually three of the five units vz., phenol distillation unit, high pressure synthesis unit and salt recovery unit were gradually closed down or dismantled (para 11 *infra*). Thus an investment of Rs. 101·30 lakhs (Rs. 89·93 lakhs on installation and Rs 21·37 lakhs on renovation, repair and modification from 1971-72 to 1984-85) became largely infructuous.

The salt recovery unit of phenol plant installed in March 1970 at a cost of Rs. 39·93 lakhs and modified in 1970-71 at a cost of Rs. 2·17 lakhs was never operated due to corrosion problem. The salt produced in the unit contained 1·5 *per cent* of

phenol as impurity which rendered the salt unfit for consumption in caustic chlorine plant. This had a crippling effect on caustic chlorine plant, as salt had to be purchased at high cost from West Coast, which, in turn, resulted in unceonomic cost price of caustic soda lye produced by the Company (Paragraph 12(*c*) *infra*).

The Member-Secretary, Standing Advisory Committee on Corporations opined (March 1987) that it would have been possible to remove the impurities with suitable absorbent or by steam stripping. The Management stated (June 1989) that the unit could not be utilised as it was designed on at least 60 *per cent* operation of the phenol plant, but the phenol plant, after its commercial operation, never ran above 11 *per cent* capacity.

6.3 *Pentachlorophenol plant*

The pentachlorophenol plant erected at a cost of Rs. 32·34 lakhs was put to commercial operation in June 1969. It has a rated capacity of 990 tonnes *per* annum. Pentachlorophenol (PCP) is produced by the reaction of phenol and chlorine in nickel reactor in which hydrochloric acid is obtained as a by-product. PCP mixed with hydrochloric acid when neutralised with caustic soda, sodium pentachlorophenate (SPCP) is obtained which is dried and flaked for selling in drums.

The table below gives year-wise data of installed capacity, target of production and actual production during the five years up to 1988-89:

	1984-85	1985-86	1986-87	1987-88		1988-89	
	PCP			PCP	SPCP	PCP	SPCP
			(In tonnes)				
Installed capacity	990 (9)	990 (13)	990 (11)	990 (9)		990 (14)	
Target	240 (37)	240 (52)	400 (28)	400 (15)	200	—	—
Actual	90	125	112	49	38	70	68
				87		138	

The above table shows that targets were all along fixed much below the rated capacity while production was further below

Note: The figures in brackets represent percentage of actual production to installed capacity/ target.

the targets. According to the Management (November 1987), the low production was due to lack of market. The plant was also shut down due to non-availability of phenol (Paragraph 7.4 *infra*).

The Company incurred (November 1987) an expenditure of Rs. 3·75 lakhs for replacement of corroded structure and Rs. 3·00 lakhs on renovation of heat insulation of steampipe. The Management further required (November 1987) installation of top cover bubbler, neutraliser and repair of floor area and surface drains urgently. No action in this regard has been taken so far (August 1989) owing to non-availability of funds.

6.4 *Phthalic anhydride plant*

Phthalic anhydride plant was commissioned in January 1968 at a cost of Rs. 126·71 lakhs (including foreign exchange component of Rs. 99·22 lakhs) to produce phthalic anhydride by oxidation of hot pressed liquid naphthalene with air in presence of catalyst (vanadium pentoxide).

The following table gives year-wise data of installed capacity, target fixed, and actual production during the five years up to 1988-89:

	1984-85	1985-86	1986-87	1987-88	1988-89
			(In tonnes)		
Installed capacity	3,300 (15)	3,300 —	3,300 (11)	3,300 (28)	3,300 (26)
Target	—	—	—	2,400 (38)	—
Actual	485	—	377	916	845

As regards low capacity utilisation, Management attributed the following factors in November 1987:

(*i*) non-availability of required quality and quantity of naphthalene at a reasonable price;
(*ii*) technical difficulties relating to catalyst;
(*iii*) non-availability of steam;
(*iv*) marketing constraints;
(*v*) low input-output ratio.

As already mentioned earlier, the original project concept envisaged utilisation of naphthalene of Durgapur Projects Limited

Note: The figures in brackets represent percentage of actual production to installed capacity/ target.

(DPL) or Steel Authority of India Limited (SAIL). The naphthalene of DPL was not suitable because of its high oil content. SAIL increased the price of hot pressed naphthalene from time to time from Rs. 7,000 *per* tonne in 1983 to Rs. 12,000 *per* tonne in 1984. The Company reduced its production from 1,539 tonnes in 1982-83 to 599 tonnes in 1983-84 and closed down the plant in January 1985. By producing phthalic anhydride in 1985-86, the Company's result would have been a negative contribution of Rs. 5,800 *per* tonne, as was then analysed by Management. The plant remained idle during 1985-86. Only on negotiation, when SAIL agreed to supply naphthalene at Rs. 8,500 *per* tonne, the plant could start operation at the end of 1986-87. Irregular availability of raw materials severely affected the production in 1988-89. The price escalation of this raw material from January 1989 to Rs. 16,800 *per* tonne affected the procurement of raw material leading to interruptions in production. By producing phthalic anhydride, the Company actually incurred losses of Rs. 15,425, Rs. 20,785 and Rs. 24,402 *per* tonne in 1984-85, 1986-87 and 1987-88 respectively.

Due to frequent accident and breakdown of the plant (Paragraph 17 *infra*) there were leakages in the mercury shell. Non-rectification of the leakages led to escape of mercury from the shell, which contaminated the catalytic mass which had been charged to the reactor during March 1981. On analysis during March 1984 a quantity of 1·8 tonnes of contaminated catalyst valuing Rs. 3·33 lakhs was found to be unuseable as catalyst. The life period of catalyst (vanadium pentoxide) used in the reactor for production of phthalic anhydride is normally two years. Besides, catalytic mass, when used, deteriorates and requires replacement for which catalyst is kept in stock. Another lot of 600 kg of catalyst valuing Rs. 0·54 lakh (procured in April 1973) remaining in store was found (June 1981) unsuitable for use as catalyst due to expiry of its life period of 2 years. This led to a loss of Rs. 3·87 lakhs to the Company because of Management failure to take appropriate action in time, either in repairing the leakages in plant or using stock of catalyst within its life period.

The Management stated (June 1989) that the catalyst had already outlived its utility and needed replacement. Some Experts brought from France to examine the reacting capacity of the plant in 1986-87 changed the catalytic mass and showed that rated capacity could be achieved. However, for other factors

there was no improvement as regards attaining the rated capacity thereafter.

Due to irregular supply of coke oven gas by DPL, the Company switched over to Light Diesel Oil (LDO) firing system by August 1985 at a cost of Rs. 4·77 lakhs (Paragraph 6.5.1.2 *infra*). But this could not result in improvement of production. This could only reduce the frequency of shut-down of plants for shortage of coke oven gas from DPL. However, the effect of LDO firing system on the production cost of phthalic anhydride could not be worked out for want of relevant cost records.

As regards marketing constraints, the Company is selling practically as much as it is producing so far as phthalic anhydride is concerned, though it can hardly recoup the variable cost (Paragraph 12 *infra*). In order to improve liquidity position its pricing policy is to sell against payment in advance. Up to 1968-69 the Company had monopoly over production of phthalic anhydride. Its plant was conceived as import substitution project. Now competitors have come into the field. They are offering softer terms by way of credit facility and discount, as their production process is modern and cost is less because of use of cheaper variety of feed stock (orthoxylene). The average yearly production of the Company is only 800 tonnes against the total indigenous production of 40,000 tonnes *per* annum. This shows that the Company now commands only two *per cent* of the market share.

As regards low input-output ratio the matter has been discussed in Paragraph 6.7 *infra* which showed how this had led to a total loss of Rs. 86·61 lakhs in the four years up to 1988-89.

One of the main causes for underutilisation of capacity was the frequent break-down of the plant (Paragraph 17 *infra*). The reactor was the most important part of phthalic anhydride plant and this had faced number of break-downs due to development of cracks in the reactor or reactor bellow. Despite repair and replacement of some parts of the plant at a cost of Rs. 16·50 lakhs during the period from February 1980 (when an explosion occurred) to December 1986, the plant remained shut down for nearly 43 months during the same period. Even in the subsequent period up to 1988-89, the Company incurred expenditure of Rs. 25·28 lakhs towards repairs/replacements but there was no improvement in the production; on the other hand there was a fall in production.

According to Management (June 1989), yield cannot be

improved unless major changes were taken up like replacement of reactor condensor, mercury cooler elements, distillation boilers and distillation column.

6.5 *Rectification/modification and expansion programme*

6.5.1 *Rectification/modification programme*

For the purpose of technical revitalisation of the existing plants, the Company had undertaken a rectification/modification programme during the Sixth Five-Year Plan (1980-85). The programme covered an expenditure of Rs. 401 lakhs which was sanctioned for the Sixth Plan outlay. Out of this, the Company received Rs. 330 lakhs which was utilised for the purpose. Some of the works undertaken in rectification/modification programme are discussed below:

(*i*) *Brine clarifier system for caustic chlorine plant*

In order to bring down cost of production of caustic soda lye by way of reducing consumption of salt, feasibility of using inferior quality of salt at lesser price, better clarity and sustained running of the plant, an order was placed (December 1982) with Krebs Engineering Private Limited, Madras for installation of brine clarifier system on cost plus fee basis at an estimated cost of Rs. 53·34 lakhs.

The first phase of brine clarifier system was completed at a cost of Rs. 40 lakhs and was handed over to the Company on 19th September, 1985. As *per* contract, the final test run was not done for reasons not on record. The Company has neither used cheaper variety of inferior quality salt nor did the production of caustic soda increase after its installation.

(*ii*) *Vacuum drum filter*

The Technical Committee recommended (September 1984) installation of vacuum drum filter being a part of brine clarifier system to remove mercury from brine sludge. In the first phase brine clarifier system was completed with sludge pit system and in the second phase vacuum drum filter system was to be connected up. The Board approved (November 1984) the erection of the said vacuum drum filter under the consultancy of Krebs Engineering Private Limited, Madras. The Central Water Pollution Control Board directed (May 1985) that vacuum drum filter should be completed by March 1986. The contract for

supply of equipment, spares and erection was awarded (January 1986) to EIMCO-KCP, who had experience of similar work. The work was estimated to cost Rs. 10 lakhs.

While considering the progress of various schemes, the Board expected (October 1985) that the installation of brine clarifier system would yield Rs. 56 lakhs *per* year by way of increased production/sales which, in turn, would result in an increased contribution of Rs. 15 lakhs *per* year.

There was fall in production from 6,104 tonnes in 1985-86 to 4,853 tonnes in 1986-87 and to 4,098 tonnes in 1987-88 and to 2,683 tonnes in 1988-89. However, on the installation of brine clarifier system in 1985-86 (November 1985) the sales return came down from Rs. 247·80 lakhs in 1985-86 to Rs. 195·89 lakhs in 1986-87 and to Rs. 188·31 lakhs in 1987-88 and to Rs. 128·54 lakhs in 1988-89 *i.e.* a fall in sales return by Rs. 51·91 lakhs, Rs. 59·49 lakhs, and Rs. 119·26 lakhs in 1986-87, 1987-88 and 1988-89 respectively.

The negative contribution *per* tonne increased from Rs. 815 in 1985-86 to Rs. 1,408 in 1986-87 and to Rs. 2,123 in 1987-88 after installation of brine clarifier system.

(*iii*) *Modification of brine clarifier system*

The brine clarifier system designed, supplied and commissioned by Krebs Engineering, Madras consisted of main clarifier, intermediate tank to receive clarified brine, floceulent preparation and addition system, pumps with pipelines, valves, etc.. After careful study by the Management in 1987-88 it was observed that intermediate brine tank with pumps, valves and pipelines (procured at a cost of Rs. 4 lakhs) for receiving clarified brine from main clarifier and then again pumping the brine to storage tanks were not required as the clarified brine could be directly fed to storage tanks from the main clarifier without intermediate tank system. The modification was effected (February 1988) departmentally resulting in reduction in maintenance expenditure of pumps, valves, pipelines and some economy in electricity consumption due to abolition of pumps.

This showed that original design contained certain items which were not essential for running the system. Therefore, the intermediate tank system consisting of pumps, valves, pipelines costing Rs. 4 lakhs could have been eliminated completely without impairing its performance. In view of above the expenditure of Rs. 4 lakhs proved wasteful.

6.5.1.1 *Vertical salt saturator*

Due to too much sludge formation and choking, installation of a vertical salt saturator with a capacity of 45 tonnes *per* day was felt necessary in 1984-85 and the vertical salt saturator was erected in July 1988 at an estimated cost of Rs. 11·36 lakhs.

In the absence of register of works, audit could not work out the expenditure incurred actually on the project.

The Management had not so far (August 1989) assessed the benefit derived out of vertical salt saturator in removing the sludge before sending the brine solution to the electrolytic cells.

6.5.1.2 *LDO firing system*

The heating media at phthalic anhydride plant and phenol group of plants was coke oven gas supplied by DPL. During the first half of 1984 the supply of gas became poor as well as irregular and sometime supply was completely stopped. In order to overcome this difficulty, the Management placed an order in November 1984 on Wesman Thermal Engineering Process Private Limited, Calcutta for installation of LDO heating system, which was completed and commissioned (October 1985) at a cost of Rs. 4·77 lakhs (Paragraph 6.4 *supra*). While installing, the Management expected (October 1985) that the LDO heating system would help the Company to increase its production/sales to Rs. 500 lakhs yielding a contribution of Rs. 96 lakhs. However, while the sales in 1985-86 was Rs. 449·83 lakhs, the same had gone down to Rs. 444 17 lakhs in 1986-87 to Rs. 440·71 lakhs in 1987-88 and to Rs. 386·86 lakhs in 1988-89 (Paragraph 8.1 *infra*). Against the anticipated contribution of Rs. 96 lakhs, the same was found actually minus Rs. 78·07 lakhs in 1986-87, minus Rs. 130·99 lakhs in 1987-88 and minus Rs. 134·02 lakhs in 1988-89.

6.5.1.3 *Scheme for repair, rectification and minor modification*

All the four plants of the Company having reached (November 1987) a deplorable condition causing a safety risk not only to the employees of the plants but also to the environment through pollution hazards, the Management, therefore, prepared (November 1987) a scheme for repairs, rectification and minor modification just to bring the plants to a workable condition without anticipating any significant improvement in their efficiency. The estimated expenditure of Rs. 667 lakhs would only put a stop to the process of deterioration of the plants

and also to attain a minimum standard to carry on production with an assurance of safety to men and machines. The scheme envisaged the following work programme:

Maintenance work relating to (1)	Caustic chlorine plant (2)	Phthalic anhydride plant (3)	Mono-chloro-benzene (4)	Penta-chloro-phenol (5)	Inter-plant common (6)	Boiler and utilities (7)
			(Rupees in lakhs)			
(*a*) Process and Chemical Equipment	90	175	17	11	—	—
(*b*) Mechanical	110	10	10	5	3	11
(*c*) Civil	28	8	11	3	16	5
(*d*) Electrical	18	5	6	6	12	5
(*e*) Instrument	7	10	4	4	1	1
Total:	253	208	48	29	32	22

Plants modification etc.	Rs. 592 lakhs
Rectification of damage due to Chlorine disaster of June 1987	Rs. 25 lakhs
Diasaster planning covering all plants	Rs. 50 lakhs
Total:	Rs. 667 lakhs

Against the estimated expenditure of Rs. 667 lakhs, Government released Rs. 42 93 lakhs as plan assistance for 1987-88. The Company has not compiled the expenditure thereagainst so far (August 1989). In the absence of firm commitment from Government for funding and due to shortage of funds, the programme did not take any final shape.

6.5.2 *Expansion/diversification programme*

6.5.2.1 *Caustic chlorine plant*

As the condition of the entire plant was deplorable the rectification of all the defects, according to the Management (December 1987) would require substantial sums equivalent to the cost of latest membrane cell technology (for a plant of 10,500 tonnes *per* annum cost would be Rs. 7 to 10 crores).

The Management, however, had a mind for expansion of plant capacity from 30 tonnes *per* day to 45 tonnes *per* day and keeping this position in view, the Management started work from 1980-81. A new chiller unit was installed in August 1982 at a cost of Rs. 3·60 lakhs. Renovation of soft water plant was completed (expenditure not recorded). A new third rectifier

unit was commissioned in September 1982 at an expenditure of Rs. 38·83 lakhs creating a basic facility for first phase of expansion of plant. The installation of brine clarifier system was in regard to the expansion of capacity of the caustic chlorine plant. But there was practically no effect of these either in the economic running of the plant or improvement in production of caustic soda/chlorine.

The TFC in its report (June 1988) identified, *inter alia,* high consumption of power and mercury and low input/output ratio as the probable causes for the negative contribution by the plant and recommended switch over to membrane cell technology with an investment of Rs. 8 crores.

The Company/State Government has not taken any firm decision with allocation of fund in this regard as yet (August 1989).

6.5.2.2 *Phthalic anhydride plant*

In order to produce phthalic anhydride at an economic level, the Company undertook a feasibility study at a cost of Rs. 0·65 lakh in March 1985 with the help of Engineers India Limited for running the plant with an alternative raw-material Orthoxylene. As a long-term measure, installation of low energy dual feed phthalic reactor of 6,600 tonnes *per* annum as its rated capacity based on hot pressed naphthalene and orthoxylene was considered. A further feasibility study by Lurgi India Company Limited for conversion of the existing 3,300 tonnes *per* annum capacity reactors on orthoxylene feed with some balancing equipment has also been undertaken (October 1987) at a cost of Rs. 2 lakhs, out of which Rs. 1 lakh was paid (December 1987) as advance. The report is awaited (August 1989).

6.5.3 *Revamping/diversification*

As discussed in Paragraphs 6.2.3 and 6.5 *supra,* heavy expenditure on running and maintenance or on rectification and modification programme could not improve productivity.

In the introduction to its report of June 1988 TFC observed: "DCL had no prospect of attaining viability with the present product-mix. Despite numerous studies conducted by many experts no action programme was ever undertaken to make it viable. For most of the products the variable cost was too high and the selling price could not even cover the same".

Inter alia, the terms of reference of TFC, when constituted by Government in October 1987, were to advise on renovation,

improvement and replacement of existing plant and machinery and possible diversification of products. TFC recommended revamping of existing plants with a capital outlay of Rs. 1,175 lakhs and a diversification scheme with an estimated expenditure of Rs. 3,200 lakhs. The revamping and diversification schemes were expected to generate an annual surplus of Rs. 154 lakhs and Rs. 1,359 lakhs respectively as detailed below:

Revamping Scheme

Plant	Purpose of capital outlay	Fresh capital outlay	Surplus/ deficit
		(Rupees in lakhs)	
1. Phthalic anhydride ..	Adopt a new technology and increase capacity to 400 TPA	700	112
2. Caustic chlorine ..	Essential maintenance renovation and safety measures-capacity 10,500 TPA	327	(—) 26
3. Phenol			
(*a*) Monochlorobenzene	Revamp with safety measure to stabilise at 3,300 TPA	106	49
(*b*) Pentachlorophenol	Safety measure and stabilise at 460 TPA (derated capacity)	29	1
4. Hydrochloric acid ..	Expand, revamp and stabilise at 6,000 TPA	13	18
		1,175	154

Diversification Scheme

Plant	Investment	Surplus
	(Rupees in lakhs)	
1. Chloro product— Bleaching powder (capacity 3,300 TPA)	200	36
2. Nitro products— Paranitrochlorobenzene orthonitrochlorobeneene (capacity 5,000 TPA)	1,000	404
Nitrobenzene/aniline (Installed capacity 20,625/15,000 TPA) ..	2,000	919
	3,200	1,359

In its various annual reports, the Company identified marketing constraint for chlorine as one of the prime causes for not increasing the production of caustic soda lye. Captive use of chlorine through MCB and PCP routes was not also encouraging.

Diversification through production of bleaching powder was one of the routes for captive use of chlorine, for which capital investment required was only Rs. 2 crores. However, neither the Board nor Government has taken any decision in this regard (August 1989). Though TFC submitted its report in June 1988, the State Government is yet to chalk out an action programme to make the Company viable or to take such other decision demanded by the circumstances so as to put a stop to erosion of the State's resources in view of the mounting annual losses which have increased from Rs. 5·75 crores in 1984-85 to Rs. 12·87 crores in 1988-89.

6.6 *Loss of production*

The actual production during the period under review of almost all products remained very low compared to target of production fixed by the Company and loss of revenue due to shortfall in production at the average sales prices during the four years up to 1987-88 (there was no target for 1988-89) worked out to Rs. 2,828·53 lakhs as shown in the table on page 21:

	Caustic chlorine plant		Phenol plant	Pentachlorophenol plant		Phthalic anhydride plant	Total
	Caustic soda	Chlorine	mon-chloro-benzene	Penta-chloro-phenol	Sodium penta-chlor-phenate		
1984-85							
Shortfall (tonnes)	3,463	3,877	3,343	191	—	—	—
Average sales price (Rupees) ..	4,222	300	10,348	18,767	—	—	—
Loss of production (Rupees in lakhs) ..	146·21	11·63	345·93	35·84	—	—	539·61
1985-86							
Shortfall (tonnes)	4,875	4,701	3,339	158	—	—	—
Average sales price (Rupees) ..	4,222	300	10,348	18,767	—	—	—
Loss of production (Rupees in lakhs) ..	205·82	14·10	345·52	29·65	—	—	595·09
1986-87							
Shortfall (tonnes)	5,497	—	4,734	288	—	—	—
Average sales price (Rupees) ..	4,148	—	10,574	23,448	—	—	—
Loss of production (Rupees in lakhs) ..	228·02	—	500·57	67·53	—	—	796·12
1987-88							
Shortfall (tonnes)	6,902	4,529	2,328	329	162	1,484	—
Average sales price (Rupees) ..	4,700	350	10,126	20,707	25,994	14,252	—
Loss pf production (Rupees in lakhs) ..	324·39	15·85	235·73	68·13	42·11	211·50	897·71
							2,828·53

The causes for variance have not been analysed as controllable and non-controllable in order to determine the efficiency of various factors of production.

However, a test check of some records relating to production in 1984-85 and 1985-86 revealed that because of hindrance created by labourers of material handling contractors (Mukherjee & Co. and B.M.S. Industrial Corporation), caustic chlorine plant was closed down for 168 hours in 1984-85 and 73 hours in 1985-86 leading to loss of production of caustic soda lye and liquid chlorine which was valued at Rs. 7·56 lakhs in 1984-85 and Rs. 4·11 lakhs in 1985-86.

Similar hindrance created by labourers of material handling/coal handling contractors (B. Dey & Co., R. N. Dutta & Co. and Mukherjee Construction)led to the closure of caustic chlorine, phenol and phthalic anhydride plants in 1982-83 and 1983-84 resulting in loss of production of caustic soda, liquefied chlorine, monochlorobenzene and phthalic anhydride which was valued at Rs. 53·28 lakhs.

Employment of a fixed group of labourers out of the various affiliated unions was a pre-condition to the acceptance of the tender by an intending contractor and as such a contractor had no liberty in selecting his own workforce. Consequently the contractor had no control over his workforce. (Paragraph 18.5 *infra*).

6.7 *Excess consumption of raw material*

The original project report prescribed norms for consumption of various raw materials. The production records revealed excess consumption of raw material over the norms during the five years up to 1988-89 as shown below:

Year	Production (tonnes)	Norm per tonne (tonnes)	Actual consumption (tonnes)	Consumption as per norm (tonnes)	Excess consumption (tonnes)	Percentage of excess consumption over norm	Average cost per tonne	Value of excess consumption (Rupees in lakhs)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Consumption of salt in production of caustic soda lye								
1984-85	7,037	1·6	13,418	11,259	2,159	19·17	485	10·47
1985-86	6,025	1 6	11,648	9,640	2,008	20·83	723	14·52
1986-87	4,853	1·6	9,910	7,764	2,146	27·64	570	12·23
1987-88	4,098	1·6	7,186	6,557	629	9·59	655	4·12
1988-89	2,683	1·6	4,528	4,293	235	5·47	659	1·55
								42·89
Consumption of benzene in production of monochlorobenzene								
1984-85	1,657	0 73	1,267	1,209	58	4·80	7,400	4·29
1985-86	1,661	0 73	1,353	1,212	141	11·55	7,021	9·90
1986-87	1,266	0·73	985	924	61	6·60	7,021	4·28
1987-88	672	0 73	531	490	41	8·37	8,693	3·56
1988-89	524	0·73	412	382	30	1 85	8,693	2·61
								24 64
Consumption of naphthalene in production of phthalic anhydride								
1984-85	484	1·1	731	532	199	37·41	9,973	19·85
1985-86	—	—	—	—	—	—	—	—
1986-87	377	1·1	520	415	105	25·30	9,985	10·48
1987-88	916	1 1	1,245	1,008	277	27·48	11,122	30·81
1988-89	845	1 1	1,158	929	229	24 65	11,122	25·47
								86 61

While the loss in the case of benzene and naphthalene is erratic, the loss in the case of salt has come down considerably during 1987-88 and 1988-89.

The loss sustained by the Company due to excess consumption of materials compared to norms during the last five years up to 1988-89 stood at Rs. 154·14 lakhs. In the absence of classified records relating to processing losses or wastage of materials or finished products during production, audit could not analyse the causes for such excess consumption of raw matersials. The Management stated (September 1988) that norms of raw material consumption applicable to a newly commissioned plant could not be made applicable to a more than 15 years old plant. The Board, however, had not fixed new norms so far (August 1989). Further, according to the Management (June 1989) the excess consumption of salt was due to loss of salt in purification process.

6.8 *Payment for idle hours*

Though salary and wages paid were for the full available working hours, the actual hours worked were less in almost all plants during the five years up to 1988-89. Against the total salary and wages of Rs. 307·29 lakhs paid in respect of four plants for the five years up to 1988-89, the payment of idle wages was Rs. 171·40 lakhs as shown in the table below:

Name of the plant and year of operation	Available working hours	Actual hours worked	Idle hours	Percentage of idle hours to available hours	Salary and wages including overtime wages	Wages value of idle hours
1	2	3	4	5	6	7
					(Rupees in lakhs)	
1. *Caustic chlorine*						
1984-85 ..	8,760	8,160	600	7	19·28	1·32
1985-86 ..	8,760	6,443	3,217	26	25·00	6·60
1986-87 ..	8,760	6,050	2,710	31	26·04	8 06
1987-88 ..	8,784	5,189	3,595	41	22·86	9·21
1988-89 ..	8,760	3,440	5,320	61	27·97	17·06
					121·15	42·25

Name of the plant and year of operation	Available working hours	Actual hours worked	Idle hours	Percentage of idle hours to available hours	Salary and wages including overtime wages	Wages value of idle hours
1	2	3	4	5	6	7
					(Rupees in lakhs)	
2. *Phenol (MCB Unit)*						
1984-85 ..	8,760	3,360	5,400	62	15·21	9·38
1985-86 ..	8,760	2,972	5,788	66	17·06	11·28
1986-87 ..	8,760	2,565	6,195	71	17·90	12·64
1987-88 ..	8,784	2,148	6,636	75	19·46	14 65
1988-89 ..	8,760	2,238	6,522	74	23·77	17·59
					93·40	65·54
3. *Pentachlorophenol*						
1984-85 ..	8,760	1,575	7,185	82	4·87	3·99
1985-86 ..	8,760	2,296	6,464	75	6·21	4 58
1986-87 ..	8,760	2,281	6,479	74	6·88	5·89
1987-88 ..	8,784	1,615	7,169	81	6·65	5·40
1988-89 ..	8,760	2,709	6,051	69	8·26	5·70
					32·87	25·56
4. *Phthalic anhydride*						
1984-85 ..	8,760	2,760	6,000	68	12·36	8·47
1985-86 ..	8,760	Nil	8,760	100	4·58	4·58
1986-87 ..	8,760	2,308	6,452	78	5·94	4·38
1987-88 ..	8,784	3,891	4,893	55	16·67	9·24
1988-89 ..	8,760	3,823	4,937	56	20·32	11·38
					59·87	38·05
				Grand Total	307·29	171·40

In the absence of plant utilisation budget in combination with production budget showing the hours to be utilised in production and hours for running maintenance and for planned outages, audit could not assess how much of idle wages paid were due to normal idle hours and how much due to abnormal idle hours resulting from unforeseen events/improper maintenance.

7. **Purchases**

7.1 *Purchase procedure*

Salt, naphthalene, stores and spares, catalytic agent and some chemicals like lime, carbide sludge, barium carbonate and soda ash constituted major items of purchases by the Company. As a normal procedure salt was purchased from private parties of West Coast (Gujarat) by rail, benzene from SAIL, IISCO and Bharat Petroleum Corporation Limited by road tanker. Naphthalene was procured from SAIL by truck. It was imported in some cases. Phenol was purchased from private suppliers by road. The purchases are made from Government undertakings through negotiation or on the basis of price-list and from private suppliers on the basis of tender/quotation unless the item purchased belonged to proprietory category.

7.2 *Non-preparation of purchase manual*

The Company did neither prepare any purchase manual nor was there any compilation of orders of delegation of financial powers. The purchases are made both from the Calcutta office and from plant office at Durgapur. Bulk purchases are made from Calcutta. Purchases of small value items are made from Durgapur. As per the Organisation Chart, the Company's purchase wing at Calcutta is under the Secretary and purchase cell in Durgapur is under the Director of Finance. There is a Pricing and Tender Committee for fixation of selling prices of its products and finalisation of bulk purchases which is approved by the Board of Directors.

In the absence of a manual or clear directives issued by the Board, the purchases are made as and when felt necessary by any department of the Company without assessing its actual requirement or suitability which led to accumulation of non-moving or obsolete stock (Paragraph 9 *infra*).

7.3 *Quantum of purchase*

For purchase of raw material or stores there was no long-term planning keeping in view the minimum requirement of stock in the production process of plants. There is no economic ordering quantity or fixation of level of stock to run the plants smoothly. Out of the total 1,09,443 idle hours the plants were shut down for 56,721 hours during the five years up to 1988-89 for shortage of raw materials.

The table below indicates the value of purchases of major items during the five years up to 1988-89:

	1984-85	1985-86	1986-87*	1987-88*	1988-89*
			(Rupees in lakhs)		
Salt	63·41	64·73	61·77	36·35	23·95
Benzene	95·17	100·10	80·78	47·12	46·44
Naphthalene ..	Nil	Nil	69·05	148·62	117·60
Stores and spares ..	108·70	104·94	143·31	NA	NA
Mercury	5·11	6·12	1·19	1·76	NA

7.4 *Shortage of raw materials*

The four plants were closed down for a total period of 56,721 hours for shortage of various raw materials during the five years up to 1988-89 as shown in the table below:

Year	Caustic chlorine plant for shortage of salt	Monochloro-benzene plant for shortage of benzene	Pentachloro-phenol plant for shortage of phenol	Phthalic anhydride plant for shortage of naphthalene	Total
					(Hours)
1984-85 ..	—	—	4,074	1,416	5,490
1985-86 ..	—	—	1,061	8,663	9,724
1986-87 ..	—	6,194	1,326	6,128	13,648
1987-88 ..	—	6,612	5,236	323	12,171
1988-89 ..	4,057	6,523	3,637	1,471	15,688
Total ..	4,057	19,329	15,334	18,001	56,721

Notes: 1. Catalytic mass (mostly imported stock) was not procured during the period under review.

2. N.A.—Not available.

*Provisional.

A test check on the causes of raw material constraints revealed that the Company could not procure naphthalene when the price was suddenly increased by SAIL (Paragraph 6.4 *supra*). The procurement of salt suffered as the supplier suddenly stopped supply in 1988-89 on the ground that escalation in price owing to enhancement of railway freight which was not allowed by the Company.

The Director of Finance stated (June 1989) that production halt was due to non-availability of naphthalene and benzene from SAIL. Though the idleness for want of raw material constituted 51·8 *per cent* during the above period, the Management did not analyse the avoidable and unavoidable causes of the shortages for taking remedial measures.

7.5 *Irregularities in purchases of salt*

7.5.1 Between 1981-82 and 1986-87 the Company entered into contracts for supply of salt by suppliers in West Coast at consolidated rates (*per* tonne) of Rs. 370 (September 1981), Rs. 449 (February 1983), Rs. 487 (December 1984) and Rs. 569 (September 1986) inclusive of all elements of cost during the period of contract. There was, however, no clause in the agreements for payment of escalation in cost. A test check of records revealed that the local Management of the Company had allowed escalation amounting to Rs. 8·85 lakhs on the supplies of 14,050 tonnes of salt due to increase in railway freight during the above period despite the absence of specific clause and the Board's approval.

7.5.2 *Supply by Adinath Agencies*

In December 1979, July 1980 and March 1981, the Company placed three orders on Adinath Agencies, Calcutta for supply of 5,300 tonnes of salt on payment of advances totalling Rs. 7·97 lakhs on three occasions without any security. The second and third advances were paid without adjusting the earlier advance. The Company received 4,423 tonnes of salt valued Rs. 6·85 lakhs leaving a balance advance of Rs. 1·12 lakhs for recovery of which no legal action was taken.

A test check of records in November/December 1988 revealed the following:

Salt valued Rs. 1·06 lakhs (591 tonnes) was received short. Railway freight amounting to Rs. 1·20 lakhs was paid on salt received short. The supplier was liable, in terms of the contract,

to a penalty of Rs. 0·58 lakh for supply of substandard salt. The amount had neither been deducted from the supplier's bill nor claim lodged with supplier (September 1989).

The local Management stated (June 1989) that realisation was not feasible.

8. **Sales performance**

8.1 *Sales procedure*

According to organisation chart, the Secretary of the Company is the head of the sales organisation. He is assisted by one Assistant Manager (Sales) who processes sales cases.

Caustic soda lye, chlorine, phthalic anhydride, monochlorobenzene, pentachlorophenol and sodium pentachlorophenate constituted main items of sale. The Pricing and Tender Committee of the Company fixes prices for the products. The Company sells its various products in competition with chemical industries under private sector. The customers belong to both public and private sector industries and private traders.

8.2 *Sales targets and achievements*

The table below shows the actual production and sales vis-a-vis the targets during the five years up to 1988-89:

Year	Production		Sales		Percentage of	
	Target	Actual	Target	Actual	Actual production to production target	Actual sales to sales target
			(Rupees in lakhs)			
1984-85	1,180·56	963·44	978·09	529·29	82	54
1985-86	1,227·76	849·80	978·33	449·83	69	46
1986-87	1,556·85	1,011·70	1,224·53	444·17	65	36
1987-88	1,676·02	1,031·58	1,307·55	440·71	61	34
1988-89	Not fixed	NA	Not fixed	386·86	—	—

The percentage of actual sales to sales target as also actual production to production target had been declining. The targets for 1988-89 were, however, not fixed.

The table below indicates quantitative production and sale of various products vis-a-vis targets during the five years up to 1988-89:

	1984-85			1985-86			1986-87			1987-88			1988-89		
	Target	Production	Sales	Target	Production	Sales	Target	Production	Sales	Target	Production	Sales	Target	Production	Sales
								(tonnes)							
1. Caustic soda	9,606	7,037	6,732	10,400	6,104	6,007	10,350	4,853	4,718	10,190	4,098	4,009	Nil	2,683	2,649
2. Phthalic anhydride	500	485	484	Nil	—	—	Nil	377	360	2,400	916	932	Nil	845	810
3. Chlorine	3,182	4,123	2,722	3,960	3,300	1,921	2,400	2,427	1,105	3,380	2,071	1,545	Nil	1,389	776
4. Monochloro benzene	3,600	1,657	1,774	4,700	1,661	1,596	6,000	1,266	1,283	3,000	672	649	Nil	525	550
5. Pentachloro-phenol	300	49	61	240	83	77	200	112	62	200	71	45	Nil	70	72
6. Sodium pentachloro-phenate	100	—	—	60	—	—	200	—	—	200	38	36	Nil	68	67

During 1985-86 to 1987-88, sales of pentachlorophenol (PCP) were much less compared to production, as the Indian Railways, the principal consumer of PCP lifted less stock because of their change-over from wooden sleepers to concrete sleepers. The stock started accumulating up to 1987-88 (Paragraph 6.3 *supra*).

8.3 *Sale pricing*

Though price of products are fixed by a Pricing and Tender Committee with the approval of the Board (Paragraph 8.1 *supra*), the proposal for revision of prices is not based on any market survey or cost of the product. There was practically no market survey to assess the demand for any product in the market, possible requirement of consuming industries, increase in annual demand and effect of increase on volume of production/ release for sales, etc.

As regards fixation/revision of prices of various products the Management stated in June 1989 the following:

"While reviewing and refixing the price of the Company's products all available information relating to competitors' price, terms and market conditions are normally gathered and placed for taking appropriate decision by the Pricing Committee/ Board. Prices are always fixed at par with those of competitors as far as practicable, taking into account the various factors so that landed price at consumers' end remains the same".

But the Management did not produce such records to Audit for test check (August 1989).

However, the TFC enquired from the neighbourhood competitors about market prices during the later part of 1987-88 and incorporated the results in its report (June 1988) according to which, "Sale price of chlorine was Rs. 1,000/MT in 1979-80. The price came down gradually. From 1st January 1987 the price was as low as Rs. 350/MT. The Committee learnt from East India Pharmaceuticals Works Limited, the next door neighbour of DCL, that they are purchasing chlorine from open market at a landed cost of Rs. 1,050/M.T. The price of caustic soda of DCL was Rs. 4,700/MT with effect from 1st January 1987. Again East India Pharmaceuticals Works Limited is purchasing the product at landed cost of Rs. 6,500/MT from open market. The anomalies in pricing of finished products remain unexplained".

On being pointed out by the Task Force Committee, the Company increased (May 1988) the prices of different products. The increase in prices ranged between Rs. 150 for chlorine and Rs. 2,000 for PCP/SPCP. In regard to this rate increase, the TFC observed that the market price of the products was higher than even the revised price and there was scope for further upward revision.

The Management, however, did not explain the anomalies in prices, as pointed out by TFC in June 1988 so far (August 1989).

Audit too could not work out (August 1989) the extent of losses suffered by the Company due to price anomalies as pointed out by TFC, as the accounts for 1986-87 along with subsidiary accounts for the year have not been finalised so far (August 1989). Audit, however, worked out the losses suffered by the Company because of selling of its products below cost (Paragraph 12 *infra*).

8.4 *Recommendation of COPU*

The COPU in its Eighth Report (1977-79) made certain comments on "Marketing and Sales" as reproduced below:

"The Committee is of opinion that the entire marketing division of the Company did not show any zeal to sell the products at profitable rates and this led the Company to huge financial losses. The Committee felt that the Company did not pursue a sound pricing policy and haphazardly fixed the price of the products without giving any consideration to the ruling market price as a result of which the Company had to suffer huge losses year after year when other private companies producing the same products made profit. This is a glaring example of the Company's inefficiency in marketing the products".

The Management had neither pursued a sound pricing policy nor re-organised "Marketing and Sales" wing of the Company so far (August 1989) as desired by COPU.

8.5 *Miscellaneous irregularities*

8.5.1 During the period from January 1987 to March 1989, the price of phthalic anhydride was revised eight times within the range of Rs. 13,500 to Rs. 21,000 per tonne. It was noticed that though average normal monthly off-take of phthalic anhydride was around 50 tonnes by the customers, there was delivery of more than this quantity just before price rise. Few

such instances involving a loss of Rs. 2·38 lakhs are tabulated below:

Pre-revised rate (PR)	Revised rate (RR)	Date from which RR effective	Quantity lifted	Period when lifted	Difference in price (2)—(1)	Loss (4) (6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
			(tonnes)		(Rupees)	
15,000	16,000	11th March	87	25th February to 7th March	1,000	87,000
16,000	17,000	7th May	66	24th April to 6th May	1,000	66,000
17,000	18,000	3rd July	85	23rd June to 1st July	1,000	85,000
					Total	2,38,000

This showed that the Company could not ensure full advantage of the price revision though its selling price was much less when compared to cost (Paragraph 12 *infra*).

9. **Inventory Control**

9.1 The table below summarises the value of closing stock of raw materials and stores and chemicals for the five years up to 1988-89:

Closing Stock	1984-85	1985-86	1986-87	1987-88	1988-89
			(Rupees in lakhs)		
			(Provisional)		
Raw materials ..	14 00	6·70	29·23	29·38	NA
Stores and chemicals ..	91·42	86·54	151·97	103·54	NA

The minimum, maximum and re-ordering level of stores and spares were not fixed. There was no systematic inventory control. The Company had been suffering from chronic fund shortage during the period under review leading to production hold-up on account of shortage of materials.

9.2 *Non-moving stock*

At the end of March 1988, the Company held on inventory of stores and materials valued Rs. 132·92 lakhs (provisional).A test check of stores records revealed that store items valuing Rs. 57·65 lakhs had not moved for periods ranging from one

year to more than ten years as on 31st March, 1989, as shown below:

Stores which did not move for	Indigenous		Foreign		Total	
	Number of items	Value (Rupees in lakhs)	Number of items	Value (Rupees in lakhs)	Number of items	Value (Rupees in lakhs)
(*i*) Ten years or more	10	2.65	13	12·31	23	14·96
(*ii*) Five years or more but less then ten years ..	19	6·89	24	12·42	43	19·31
(*iii*) One year or more but less than five years ..	6	2·55	11	3·99	17	6·54
(*iv*) Five years or more where actual date of purchase and country of origin are not on record	—	—	—	—	102	16·84
	35	12·09	48	28·72	185	57·65

Existence of idle stores to the extent of Rs. 57·65 lakhs of which the stores valued Rs. 51·11 lakhs were more than five years old, in a total inventory of Rs. 132·92 lakhs indicates lack of effective inventory control and efficient fund management, as due to storage of unnecessary items funds to the extent of Rs. 57·65 lakhs remained blocked up causing paucity of working capital.

10. **Physical Verification**

10.1 The Company has got no cell for verification of stores, spares and products. A firm of Chartered Accountants was appointed as stock valuer and physical verifier of raw materials, finished goods, work-in-process, spare parts, loose tools and other stores and chemicals. The stock valuer completed his job for the year ended 31st March, 1986 in July 1987. Though the firm was continued for subsequent years also, there was no indication whether physical verification and valuation of stores of other years up to 1988-89 was conducted (July 1989). Since the store is a running store and materials and stocks etc., are on continuous issues and receipts it is difficult to assess in what particular year excesses or shortages arose, when physical verification is in arrears for two to three years.

The Management stated (July 1989) that "physical veri-

fication of the Company's stock was never in arrears and completed in and around 31st March". The reply of Management is not susceptible of Audit verification as the Management could not produce to Audit either the summarised physical verification report or the item-wise physical verification sheet for 1986-87, 1987-88 or 1988-89 even in July 1989.

10.2 In the case of shortage of mercury valued Rs. 7·54 lakhs occurred earlier, the COPU in its Eighth Report (March 1979) recommended finalisation of enquiry, fixing of responsibility and strong security measure to prevent pilferage of mercury in future. Even after a lapse of a decade, the shortage of mercury could neither be adjusted nor any responsibility for the loss fixed so far (August 1989).

Further, in a stock-taking of mercury conducted in September 1987, shortage of 7·702 tonnes valued Rs. 19·64 lakhs was noticed. This shortage has also not been investigated for fixing responsibility, if any.

10.3 The stock-taking report of Central Excise Authority indicated (March 1986) shortage of finished stock valued Rs. 8 lakhs which included 47·533 tonnes of phthalic anhydride valued Rs. 6·37 lakhs arising before 1984-85. The shortage, which was written off before 1984-85 was due to the difference between standard weight recorded during production and actual weight specified during despatch from Central Excise store. However, the Central Excise Authority did not accept this explanation and on adjudication (November 1986), the Company deposited (January 1988) central excise duty of Rs. 0·55 lakh on shortages of phthalic anhydride (47·799 tonnes), caustic soda (4·199 tonnes), liquid chlorine (12·749 tonnes), monochlorobenzene (1·358 tonnes), phenol (4·104 tonnes) and sodium pentachlorophenate (0·161 tonne).

The Management stated (June 1989) that the Company had introduced a system of actual weighment of pure phthalic anhydride produced in each batch with effect from July 1984 and since then there was no shortage of phthalic anhydride. The Management had not explained why shortages arose in respect of other five products and the steps that have been taken to avoid such shortages (August 1989).

11. **Idle Plant and Machinery**

Cases of plant and machinery erection and commissioning of which was completed by 1970 but could not be operated at

all or when put to commercial use, the operations were abandoned because of technical failure or other reasons are given in the following table:

	Name of the plant and machinery	Date from which lying idle	Value (Rupees in lakhs)	Remarks
1.	Salt recovery unit of the phenol plant	April 1970	42·10	The unit installed at Rs. 39·93 lakhs and modified at Rs. 2·17 lakhs was kept idle as the salt produced could not be made phenol-free for use in caustic chlorine plant. Moreover, for optimum operation of this unit, operation of phenol plant at 60 *per cent* capacity is essential, while actual capacity utilisation of phenol plant could never rise above 11 *per cent*. Hence, the unit was dismantled in 1979. The equipment with reserve price of Rs. 7·74 lakhs declared (December 1986) unusable by Board is yet to be disposed of.
2.	High pressure synthesis unit of phenol plant	April 1970	85·45	The unit could not run from inception mainly owing to high pressure pumps, leaking gaskets of autoclaves and failure of nickel gasket joints on heat exchangers. For improvement of leaking defect Rs. 7·64 lakhs was spent up to 1983-84 and a further sum of Rs. 13·73 lakhs was spent on the installation of H-25 tank by May 1984. However, the unit could never be operated.
3.	Phenol plant	1983	79·29	The plant except MCB unit and other two units stated above was closed down in 1983 because of highly uneconomic operational cost and technical obsolescence from the very outset.
4.	Soda fusion unit of caustic chlorine plant	February 1970	22·22	The unit erected at a total cost of Rs. 19·99 lakhs broke down in 1970. Rs. 2·23 lakhs were spent in 1976-77 for its rectification, but it could not be recommissioned (June 1989).
5.	Sulphuric acid unit of caustic chlorine plant	1968	15·02	The unit meant for recovery of commercial sulphuric acid from spent sulphuric acid could not be operated since inception because of technical flaw in the plant.
6.	Drum making plant with spares and welding sets	November 1975	6·61	The unit meant for making container drums of phthalic anhydride plants was not commissioned at all. The Management has not assigned any reason therefor.

The Company continued to bear the burden of idle fixed capital valued Rs. 250·69 lakhs.

12. Cost Control

12.1 In terms of Section 233-B read with section 209(1)(*d*) of the Companies Act, 1956, there is provision for audit of cost accounts in respect of caustic soda with the purpose of specifying how to regulate production, choose economical methods of operation, help reduce works cost by pointing out waste and guide future policies and to improve efficiency. Such cost audit was last conducted in March 1983 in respect of accounting year 1981-82. Though asked for by the Company Law Board, the cost audit of caustic soda lye for 1986-87 has not been taken up so far (August 1989).

The Company has no regular system of maintaining costing records in order to arrive at the unit cost of caustic soda despite provision of section 233-B ibid.

The Company is also processing various products, by-products and derivatives of benzene. The Company has not, however, introduced a scientific process costing for valuation of main products, by-products and work-in-progress as a measure towards effective control over economic production.

12.2 *Contribution analysis*

The plant authority prepares a consolidated monthly performance result on marginal costing technique incorporating cumulative expenses in a particular month/year. The analysis of the cost of the production and sales as per monthly performance report for the three years up to 1988-89 revealed the following:

	(In absolute term)			(On indices basis)		
	1986-87	1987-88	1988-89	1986-87	1987-88	1988-89
	(Rupees in lakhs)			(Percentages)		
A. Sales value of production	434·50	420·61	389·44	100	100	100
B. Total variable cost						
(*i*) Raw material consumed	191·95	228·52	215·61	44	54	55
(*ii*) Other variable cost (power, water, coal, gas, etc.)	320·62	323·08	307·85	74	77	79
Marginal cost	512·57	551·60	523·46	118	131	134

	(In absolute term)			(On indices basis)		
	1986-87	1987-88	1988-89	1986-87	1987-88	1988-89
	(Rupes in lakhs)			(Percentages)		
C. Contribution (A−B)	(−) 78·07	(−)130·99	(−) 134·02	(−) 18	(−) 31	(−) 34
D. Fixed expenses						
Employees' cost	311·19	325·19	344·96	72	77	89
Other expenses	153·94	154·79	146·28	35	37	37
Finance charges	209·42	329·28	633·36	48	78	163
Depreciation	40·00	36·00	39·96	9	9	10
Total fixed cost	714·55	845·26	1,164·56	164	201	299
E. Operational loss (C+D)	(−)792·62	(−)976·25	(−)1,298·58	(−)182	(−)232	(−)333

The contribution was negative in all the three years indicating erosion of the existing resources.

It would be interesting to quote here the observation of TFC (June 1988) that, "it would have been economic to stop production and pay the salary and meet unavoidable overheads only. Any Company in private sector would have closed the unit".

12.3 *Product profitability*

The Company does not prepare cost statement on a regular basis, though it should have done so to ascertain the extent of loss sustained by each product in the fixation of selling price of the same. The working papers produced to Standing Advisory Committee on Corporations and Task Force Committee gave an idea of relative profitability of a few major products (assuming sales as 100) during the four years up to 1987-88 as detailed below:

Note: The figures on 'indices basis' represent percentage to sales taking sales value of production of a year as 100.

	Relative profitability				
	Phthalic anhydride	Caustic soda	Liquid chlorine	Mono-chloro-benzene	Penta-chloro-phenol
1984-85					
A. Sales price ..	100	100	100	100	100
Less					
B. Variable cost ..	124	104	104	78	99
C. Contribution	(−) 24	(−) 4	(−) 4	22	1
Less					
D. Fixed cost ..	93	112	116	73	65
E. Profit(+)/Loss(−)	(−)117	(−)116	(−)120	(—) 51	(−) 64
1985-86					
A. Sales price ..	—	100	100	100	100
Less					
B. Variable cost ..	—	119	120	94	100
C. Contribution ..	—	(−) 19	(−) 20	6	Nil
Less					
D. Fixed cost ..	—	115	117	56	55
E. Profit(+)/Loss (−)	—	(−)134	(−)137	(−) 50	(−) 55

	Phthalic anhydride	Caustic soda	Liquid chlorine	Mono-chloro-benzene	Penta-chloro-phenol
1986-87					
A. Sales price ..	100	100	100	100	100
Less					
B. Variable cost ..	112	134	227	103	81
C. Contribution ..	(−) 12	(−) 34	(−)127	(−) 3	19
Less					
D. Fixed cost ..	126	150	203	89	89
E. Profit (+)/Loss (−)	(−)138	(−)184	(−)330	(−) 92	(−) 70
1987-88					
A. Sales price ..	100	100	100	100	100
Less					
B. Variable cost ..	95	145	148	94	81
C. Contribution ..	5	(−) 45	(—) 48	6	19
Less					
D. Fixed cost ..	140	172	294	141	132
E. Profit (+)/Loss (−)	(−)135	(−)217	(−)442	(−)135	(−)113

The above cost information revealed that in the case of most of the products (except monochlorobenzene and pentachlorophenol) selling prices of the products could not even cover their

marginal costs. In the case of monochlorobenzene, same situation arose in 1986-87, when the product showed negative contribution. Consequently "More the production, more the loss" situation has arisen. The Management of the Company has not analysed the causes so far (August 1989). The reasons for selling price not covering the marginal cost have also not been analysed to take appropriate remedial measures.

While examining the cost statement the TFC commented (June 1988):

"Compared to other manufacturing units located in West Bengal and other Eastern regions, DCL's variable cost is higher. The detailed clarification on such wide variations in the variable cost based on reasonable working norms, was not forthcoming from the Management."

As regards costing system the COPU in its Eighth Report (1977-79) recommended, *inter alia*, the following:

"The Committee recommends that the DCL may consider setting up such a committee" (Committee for exercising cost control) which will formulate what are called "suggestion scheme" to keep the efficiency and costs of the Company under constant review. The Committee is also of the view that Government should develop, in consultation with Public Undertakings Department, indicators of performance which provide regular and systematic information about the Company's success in controlling its costs and increasing efficiency and economising the use of man-power and resources".

Though a decade has elap sedsince the recommendations of COPU were made, neither has a committee been set up as desired by COPU nor have indicators of performance, as recommended by COPU for increasing efficiency and controlling cost, been developed (July 1989).

13. **Budgetary Control and Internal Audit**

13.1 *Budgetary control*

The Company prepares annual operating budget and capital budget. The same are not, however, prepared and got approved by the Board before the commencement of financial year. Though the budgets for the years under review up to 1987-88 were approved *post facto*, the same for 1988-89 were not approved even by August 1989.

In the performance report of the plants, actual attainments are recorded but causes for variance are not recorded and analysed in order to evaluate efficiency or take corrective measures.

A test check of actual production and sales of a few products during 1984-85 to 1987-88 against their budgeted production and sales revealed that budgets were prepared without considering previous year's performance in each case. Since the Company's survival depended on the loan/assistance from Government, higher attainments were projected in the budgets to press for more working capital.

13.2 *Internal audit*

The Company has an internal audit cell headed by an Assistant Manager who according to organisation chart, works under the Deputy Manager (Finance) and under the overall control of Controller of Finance and Accounts. The Company has not prepared any Internal Audit Manual nor prepared any programme for exercising internal audit checks during the period under review. Apart from exercising checks as regards arithmetical accuracy of payment and whether there is violation of financial power by the executives, the internal audit prepares quarterly performance report for submission to bank for availing of facilities of overdraft. The cell carries out specific checks as and when asked to do so. The cell did not cover areas like vouching of capital expenditure, custom duties paid, vouching of receipts including credit sales, raw material consumption as booked in monthly production statement, vouching of store issues and periodical bank reconciliation. There is no system of submission of periodical internal audit report to Management/Board.

The internal audit is quite inadequate considering the size of the Company, nature of business and complexities of production which is also the view of the Statutory Auditors.

13.3 *Accounting manual*

The Company has not drawn up any manual laying down the detailed procedure for the maintenance and compilation of accounts, duties and responsibilities of various officials and delegation of financial powers to them.

14. **Manpower Analysis**

The position of the actual employee strength vis-a-vis the

projected requirement at the end of each of the five years up to 1988-89 is given below:

	As on 31st March				
	1985	1986	1987	1988	1989
			(Number)		
Total staff and workers employed ..	1,131	1,118	1,120	1,109	1,088
Requirement as per project report ..	706	706	706	706	706
Excess staff and workers ..	425	412	414	403	382

In the absence of labour utilisation statements, extent of idle labour (direct) due to avoidable and unavoidable causes could not be analysed.

Local Management stated (June 1988) that labour utilisation statements in a chemical complex like DCL were hardly possible as the process was continuous. The Management should have reported to the Board on the utilisation of labour in excess of that mentioned in the project report.

15. **Financial Position and Working Results**

15.1 *Financial position*

The table below summarises the financial position of the Company under broad headings for the five years up to 1988-89:

	1984-85	1985-86	1986-87	1987-88	1988-89
Liabilities			(Rupees in lakhs)		
			(Provisional)		
(*a*) Paid-up capital (including share deposit) ..	509·31	509·31	509·31	509·31	509·31
(*b*) Borrowings (including cash credit)	2,394·31	2,741·85	2,882·73	4,331·39	4,707·20
(*c*) Deferred payment	106·10	106·10	106·10	106·10	106·10
(*d*) Trade dues and other current liabilities (including provisions)	2,267·20	2,590·33	3,018·94	2,560·53	3,435·30
	5,276·92	5,947·59	6,517·08	7,507·33	8,757·91
Assets					
(*e*) Gross block	1,465·80	1,485·78	1,513·80	1,545·80	1,560·80
(*f*) *Less:* Depreciation	969·89	1,000·96	1,037·89	1,073·89	1,113·89
(*g*) Net fixed assets	495·91	484·82	475·91	471·91	446·91
(*h*) Capital work-in-progress	22·87	51·12	15·00	15·00	30·00
(*i*) Investments	0·05	0·05	0·25	0·25	0·25
(*j*) Current assets loans and advances	492·88	544·80	375·50	405·50	379·50
(*k*) Accumulated loss	4,265·21	4,866·80	5,650·42	6·614·67	7,901·25
	5,276·92	5,947·59	6,517·08	7,507·33	8,757·91
Capital employed	(−)1,278·41	(−)1,560·71	(−)2,167·53	(−)1,683·12	(−)2,608·89
Net worth	(−)3,755·90	(−)4,357·49	(−)5,141·11	(−)6,105·36	(−)7,391·94

15.2 *Working results*

The Company had been incurring losses since its formation except for the year 1968-69 (when it earned profit of Rs. 0·85 lakh). The cumulative loss as on 31st March 1989 was estimated at Rs. 7,901·25 lakhs which represented 1,551·4 per cent of the paid-up capital.

The causes for losses as analysed from time to time by the Management and various Committees formed by Government to investigate the affairs of the Company were:

under-utilisation of capacities of various plants (paragraphs 6.1 to 6.4),

excess consumption of raw materials over norm (paragraph 6.7),

payment of idle wages (paragraph 6.8),

uneconomic purchase price paid for raw materials (paragraph 7),

outdated production process used (paragraphs 6.1, 6.2 and 6.4),

fixation of selling price much below its marginal cost (paragraph 12) and

over capitalisation resulting in charging of excessive depreciation and heavy interest burden (paragraph 6).

Further, as analysed by Audit, funding by Government by way of loan, when the Company is not able to generate any surplus, had added to the interest burden of the Company further worsening its financial results.

16. **Sundry Debtors**

Poor generation of fund and huge outstanding debts forced the Management of the Company to adopt a policy to sell against advance payment since middle of 1979. The final accounts of the Company have been certified up to 1985-86. The balances against debtors during 1986-87 to 1988-89 have been worked out by the Management only on an estimated basis. The estimated book debts at the end of March 1989 stood at Rs. 40 lakhs.

In the absence of proper accounting, the Management is not in a position to classify debtors under private sector or public sector industries. There is also no age-wise analysis of debtors.

Non-maintenance of vital documents like delivery chalans to lodge claims had resulted in a loss of revenue of Rs. 1·86 lakhs in 1984-85. If the present system continues, the Company may not be capable of establishing their claims shown as debts.

The Management stated (June 1989) that most of the debtors' balances are substantially old and it would take steps to realise old debts either through legal action or amicable settlement.

17. Disaster and Accidents

Because of high corrosive nature of products and/or effluents the Company's plants are treated as a hazardous one and are also prone to fire and accident. From time to time a number of accidents occurred in the plants damaging vital equipment, affecting production and consequently the profitability of the Company.

The table below shows the nature of accident, plant involved, date of occurrence, estimated loss or cost of repair and how it affected production.

Nature of accident	Date of occurrence	Estimated loss/cost of repair (Rupees in lakhs)	Nature of damage and other information
(1)	(2)	(3)	(4)
1. Chlorine disaster of caustic chlorine plant	August 1970	200	Chlorine leakage through pipelines badly damaged instruments and pipelines of both electrolysis and synthetic phenol plant. A committee which proved into the incident estimated the financial requirement for repairs/replacement at Rs. 2 crores. Already weak plants got crippled and economy of the Company suffered further setback. The paucity of resources delayed the rectification of plants to the detriment of the plants themselves.
2. Explosion in phthalic anhydride plant	February 1980	2·80	The explosion occurred in phthalic reactor leading to the plant shut down up to March 1981. Owing to excessive stress and thermal shock, some cracks surfaced on the reactor bellow. These were got repaired at Rs. 2·80 lakhs and the plant was commissioned in April 1981.
3. Accident in phthalic anhydride plant	May 1981	NA	The plant remained shut-down due to break-down of reboiler which was repaired and the plant was in operation since July 1981. The cost of repair is not available on record.
4. -do-	July 1983	1·28	The plant was again shut-down in July 1983 due to cracks appearing on six different places of reactor. These were repaired at a cost of Rs. 1·28 lakhs and commissioned in October 1983.

	Nature of accident	Date of occurrence	Estimated loss/cost of repair (Rupees in lakhs)	Nature of damage and other information
	(1)	(2)	(3)	(4)
5.	-do-	January 1984	7·33	Another explosion occurred in the plant owing to leakage in butterfly levers and an expenditure of Rs. 7·33 lakhs was incurred up to March 1984 to repair the damage.
6.	Chlorine disaster of caustic chlorine plant	June 1987	26·95	The accident occurred due to defect in the valve in one of the four chlorine storage tanks. The valve was seen leaking from 8th June 1987 but no fruitful attempt was made till the time of disaster on 10th June, 1987 to rectify the leakage. The compressed liquefied chlorine (60 tonnes) came out profusely in the form of gas. The loss and replacement/repair of the equipment was estimated at Rs. 26·95 lakhs and claim lodged against the insurer. Out of this Rs. 6·50 lakhs had been received as interim payment. The plant was closed down from 10th June 1987 to 26th September 1987 due to cancellation of license by the Explosives Department. The Company had left the damaged chlorine storage tank out of operation (June 1989). The Management is yet to work out the expenditure on repair/replacement/recommissioning of the plant.
7.	Fire in phthalic anhydride plant	December 1987	24·36	The fire in distillation section caused extensive damage to the plant as a result of which the plant was closed down for 372 hours. The plant was repaired departmentally and put to operation after 372 hours. The Company received an interim payment of Rs. 7 lakhs against the claim of Rs. 24·36 lakhs. The Management is yet to work out the cost of restoration of the plant. However, the Board of Directors in its meeting held in July 1988 expected further indemnification of Rs. 14 lakhs out of the accident of June 1987 and December 1987. This expectation has not been materialised as yet (August 1989).

Nature of accident	Date of occurrence	Estimated loss/cost of repair (Rupees in lakhs)	Nature of damage and other information
(1)	(2)	(3)	(4)
8. Fire in phthalic anhydride plant	October 1988	14·30	The fire occurred in the plant in the LDO firing system which resulted in the closure of the plant for 407 hours. The repair was done departmentally. The Management estimated the loss due to fire as Rs. 14·30 lakhs and lodged a claim for the said amount with the insurer. However, the insurer has not settled the claim as yet (August 1989). The Management has not worked out the actual expenditure incurred on this repair.

The chlorine disaster of June 1987 prompted the State Government to constitute (July 1987) an Enquiry Committee headed by Dr. Sankar Sen, Vice-Chancellor of Jadavpur University to investigate into the causes and circumstances leading to accidents, to identify and report on the existing defects in the plants, machinery, method in chlorine plant, steps and measures to be taken to prevent recurrence of such accidents in future, etc. According to the report submitted by the Committee, "Caustic Chlorine Plant is very old and leaks at different cells. One reinforced concrete column and some beams of the building were badly damaged. The condition of structure of phenol plant and valves was in a very bad shape". As pointed out by the Committee, the leakage of chlorine in June 1987 was the result of human failure and particularly absence of care and caution to take measures as required in particular situations and enforce safety devices. There was no preventive maintenance in the plant.

The Committee recommended a number of measures and advised for an emergency disaster management plan.

The Chief Inspector of Factories also desired the Company in September 1988 to have a plan to incorporate prevention, control and management of all process and operation of hazardous substances including those of chlorine, mercury in caustic chlorine plant, phthalic anhydride plant and benzene and monochlorobenzene plant. An emergency or disaster planning was also suggested.

The Company has not prepared the disaster management plan on the lines suggested by the Committee and the Chief Inspector of Boilers as yet (July 1989).

18. **Other Points of Interest**

18.1 *Procurement of mild steel jacketted pressure vessel*

The distillation reboiler of phthalic anhydride plant, having become old and worn out, affected the production seriously. Heavy expenditure was incurred to keep it in running condition. In order to replace it, the Company placed an order in August 1987 with Hooghly Dock and Port Engineers Limited for manufacture and supply by March 1988, a mild steel jacketted pressure vessel at a price of Rs. 9·98 lakhs. An advance of Rs. 2·45 lakhs was paid to the supplier up to 21st September 1987. The supplier sub-contracted the work in September, 1986 to Anup Engineering Limited, Ahmedabad, which had facilities to manufacture the reboiler. However, the supplier could not deliver the vessel even in June 1989.

Non-delivery of the vessel had resulted in a loss of Rs. 5 lakhs by way of patch repair and replacement of inner vessel on different occasions to keep the plant in running condition.

18.2 *Usage of costlier material*

Chlorine, obtained as a by-product in the manufacture of caustic soda lye in caustic chlorine plant has no captive use or is not sold as such after liquefaction. This is inactivated by treatment with alkaline slaked lime or spent carbide sludge which is also chemically regarded as lime. Lime was mainly used during 1984-85 to 1987-88 and carbide sludge in 1984-85 and 1986-87 and 1988-89. During 1984-88 a quantity of 5571·68 tonnes of lime valued at Rs. 37·34 lakhs was used as chlorine absorbent but same service could have been obtained by using 10362 tonnes of carbide sludge valued at Rs. 16·89 lakhs. Since chlorinated lime has got no useful value in the Company, use of carbide sludge instead of lime as chlorine absorbent would have resulted in savings of Rs. 20·45 lakhs during the four years from 1984-85 to 1987-88.

18.3 *Non-preference of rent bill on retention of chlorine cylinders*

Despite mentioning of the matter in Paragraphs 4·23 of 1972-73 (Commercial) and 2·18·2 of 1981-82 (Commercial) of the reports of the Comptroller and Auditor-General of India, the bills for Rs. 4·29 lakhs towards charges for detention of chlorine cylinders beyond free time and damages caused to valves, nuts, etc. were neither preferred nor realised from the

customers from 1985-86 to 1988-89. The rent recoverable for detention of these cylinders beyond free time between 1982-83 and 1984-85 could not be assessed because of non-availability of records to Audit.

18.4 *Loss due to omission of claim against the Durgapur Projects Ltd.*

The Company is supplying chemicals to DPL on credit while DPL is also supplying processed water, coal, gas and electricity to the Company on credit. In a settlement of mutual claims against each other, the Management of the Company omitted to claim a set-off of Rs. 3·56 lakhs against DPL in a tripartite meeting in which the State Government approved the settlement of claim of DPL against the Company for Rs. 1042·42 lakhs up to 31st March, 1986. As the final settlement was thus struck, there was no scope for recovery from DPL. No investigation was, however, undertaken to fix responsibility for this loss of Rs. 3·56 lakhs.

18.5 *Loss due to abandonment of work by the contractors*

The Company engages labour contractors for the works of material handling, coal handling, maintenance and construction. The employment of a fixed group of workers by a contractor is a pre-condition for acceptance of tender. A test check of records for 1982-83 and 1985-86 revealed that contractors abandoned many of their works as the labourers put hindrance in the smooth flow of work on some plea or others. In these cases the Company, as a principal employer, had to pay salary, wages or bonus to these workers payable by the contractors and in many cases had to complete the works appointing fresh contractor paying higher rates. This had resulted in payment of Rs. 1·66 lakhs to the workers of contractors who abandoned the work or payment to new contractor for completion of abandoned work.

The table below gives the details of such payment in 5 cases as detected during test check:

	Period	Nature of contract	Name of the contractor	Amount involved (Rupees in lakhs)	Remarks
1.	1982-83	Material handling	D. Dey and Company	0·32	The Company had to pay workers their unpaid wages and bonus as the contractor abandoned work place.
2.	1984-85	-do-	Mukherjee Construction	0·48	Contractor abandoned work and the Company paid wages and bonus to the labour. The Company could not realise the amount by legal action as yet (August 1989).
3.	1984-85	Repair of PCP plant	G. C. Chakraborty	0·26	On the abandonment of work by the contractor, the work was got executed through another contractor (Industrial Machup) at an additional expenditure of Rs. 0·26 lakh over contractual rate.
4.	1984-85	Material handling	Radha Enterprise	0·31	The Company had to pay bonus and wages to the workers on the abandonement of work by contractor. The Company terminated the contract in September 1984. The Company is yet to realise the amount from the contractor.
5.	1984-85	Caustic chlorine plant	B. Majumdar	0·29	The contractor engaged for repairing surface beam etc., of caustic chlorine plant, abandoned the work. The unexecuted work was got done by another contractor (R. N. Dutta and Co.) at an extra expenditure of Rs. 0.29 lakh over the previous contractual rate.
				1·66	

The Company had not initiated any legal action against the contractors for realisation of the wages/bonus payable by the contractor or for incurring additional expenditure to realise the excess amounts so far. In the first case, the Court decree obtained in July 1985 could not be executed as the contractor was untraceable (August 1989).

These matters were reported to Management and Government in November 1989; their replies had not been received (January 1990).

Calcutta,
The 26 JUL 1990

(A. N. MUKHOPADHYAY)
Accountant General (Audit)-I
West Bengal

Countersigned

New Delhi,
The -3 AUG 1990

(C. G. SOMIAH)
Comptroller and Auditor General
of India