Performance Audit
relating to
Government Company

Chapter II - Performance Audit relating to Government Company

Performance Audit on the functioning of Assam Petro-Chemicals Limited

Assam Petro-Chemicals Limited (Company) was incorporated (1971) as a subsidiary of the Assam Industrial Development Corporation Limited (AIDC), with the main objectives of manufacturing, marketing and dealing in petrochemicals, chemical compounds and chemical products; and undertaking all incidental and consequential activities. The present activities of the Company are, however, confined to production and marketing of Methanol and Formalin only. The present performance audit was conducted to assess the economy, efficiency and effectiveness achieved by the Company in its functioning during the period 2011-16. The major observations emerging from the present report are as follows:

Highlights

In absence of perspective/long term plans, the Company has been preparing isolated plans for executing the capital projects. Further, the Company resorted to annual short term production plans based on the expected plant availability. The Company also allocated funds on an *ad hoc* basis to carry out its marketing operations.

(*Paragraph 2.8*)

Delay in approval of integrated 500 Tonnes per day Methanol project, along with delays on part of the holding company (AIDC) in delisting of equity shares of the Company, led to unavailability of the major portion of the funds for execution of the project.

(Paragraphs 2.9.3 and 2.9.4)

During the period 2011-16, there was an excess consumption of 4,043.46 MT of Methanol (valued at ₹ 5.46 crore) in production of Formalin as against the prescribed norms. Further, the content of Methanol in production of Formalin exceeded the permissible norms of 3 *per cent* by 0.20 *per cent* to 4.92 *per cent* during September 2012 to December 2014.

(*Paragraph 2.11.5*)

The Company could not achieve the standard Plant Load Factor (90.41 *per cent)* during the period 2011-16 (except in 2012-13 for Methanol plant and in 2015-16 for Formalin plant) mainly on account of forced outages. These outages had occurred on account of mechanical, electrical and instrumental faults which were avoidable through planned maintenance.

(*Paragraph 2.12*)

The Internal Audit Reports of the Company were silent on several vital issues, such as the efficacy of systems and controls, as well as adherence to plans, policies and procedures and operational efficiency. There was absence of a control mechanism for monitoring the stock holding of the Company and ensure that the same remain within reasonable limits.

(Paragraphs 2.17 and 2.17.1)

Introduction

2.1 Assam Petro-Chemicals Limited (Company) was incorporated (1971) as a subsidiary of the Assam Industrial Development Corporation Limited (AIDC), another State Public Sector Undertaking (SPSU). As per the Memorandum of Association of the Company, the main objectives of the Company were to manufacture market and deal in petrochemicals, chemical compounds and chemical products and also to undertake all incidental and consequential activities. Presently, the Company was engaged in the production and marketing of Methanol[1] and Formalin[2] only.

Organisation Structure

2.2 The Company functions under the administrative control of the Industries and Commerce Department, GoA. The Management of the Company vests with the Board of Directors (BoD), consisting of 11 members including Chairman and the Managing Director (MD). The day-to-day operations of the Company are managed by the MD, who is assisted by General Managers/Deputy General Managers.

Scope of Audit

2.3 A Performance Audit (PA) covering the activities of the Company for the period 1998-2003 featured in the Report of the Comptroller and Auditor General of India (Commercial), GoA for the year ended 31 March 2004. The Report was discussed (January 2007) by the Committee on Public Undertakings (COPU) and the recommendations contained in the 35th Report of COPU were presented to the State Legislative Assembly on 12 November 2007. Action Taken Notes (ATNs) on the recommendations of the COPU were, however, pending for submission by the Company to the GoA (November 2016).

The present PA covered the activities of the Company for the period of five years from 2011-12 to 2015-16. The PA mainly deals with the aspects relating to planning, project management, operational performance, marketing operation, environmental issues and

[1] Methanol is used as a feedstock for production of Formalin. It is also used in manufacture of spirit.

[2] Formalin is used in the production of industrial resins, *e.g.*, for particle board and coatings.

monitoring and internal control. Presently, the Company has two manufacturing units[3] and the present PA involved detailed examination of the functioning of both the manufacturing units along with the execution of an ongoing[4] project. Besides, the status of compliance on the COPU recommendations on the earlier PA by the Company has also been examined and findings suitably included (***paragraph 2.18)***.

Audit Objectives

2.4 The audit objectives of the PA were to assess whether:

- planning and project management were effective in achieving the organisational goals;
- processing and manufacturing activities as well as marketing operations, were carried out efficiently, economically and effectively so that activities were sustainable; and
- an effective internal control and monitoring mechanism was in place to ensure efficient management of inventory and human resources as well as compliance to statutory requirements on environmental aspects.

Audit Criteria

2.5 The audit criteria for assessing the performance of the Company against above mentioned audit objectives were derived from the following sources:

- industrial policy of the GoA and the Government of India (GoI); Memorandum of Association, Articles of Association of the Company and other policy documents; Agenda/Minutes of the meetings of BoD and its sub-committees;
- regulatory clearances required from different authorities; Techno Economic Feasibility Report; appraisals made by the consultants and management; and correspondence with the Government and various stakeholders;
- industrial norms relating to processing of petrochemicals into downstream products as well as processing of Methanol and Formaldehyde; generally accepted standards relating to manufacturing and sales promotion activities; and
- conditions set by the Assam Pollution Control Board/Ministry of Environment and Forests and prescribed norms on pollution.

[3] 100 TPD Methanol Plant and 125 TPD Formalin Plant

[4] Integrated 500 TPD Methanol

Audit Methodology

2.6 The methodology adopted for attaining the audit objectives involved explaining the scope, audit objectives, audit criteria *etc*. to the management of the Company in the Entry conference (23 February 2016); analysis of data/records with reference to audit criteria; raising of audit queries; and issuing of the draft audit report to the Company/GoA for comments.

The draft Audit Report was also discussed (7 October 2016) with the representatives of the Company/GoA in the Exit conference. The formal replies (October 2016) of the Company to the draft report as well as the views expressed by the representatives of the Company and GoA in the Exit conference, have been appropriately taken into consideration while finalizing the Audit Report. We acknowledge the cooperation extended by the GoA and the Company during the course of audit**.**

Audit Findings

Financial Profile

2.7 The financial position and working results of the Company for the last five years from 2011-12 to 2015-16, have been summarized in ***Annexure 3*** and ***Annexure 4*** respectively**.** It may be seen from ***Annexure 3*** that Reserves and Surplus of the Company decreased from ₹ 63.73 crore (2011-12) to ₹ 45.96 crore (2015-16). This was mainly due to losses of ₹ 6.47 crore (2014-15) and ₹ 22.19 crore (2015-16) incurred by the Company during last two years. This was broadly attributable to decrease in prices of both the products of the Company (*viz*. Methanol and Formalin) in the domestic as well as the international market.

It can be seen from ***Annexure 4*** that revenue from operation was highest (₹ 96.47 crore) during 2013-14, which was mainly due to higher market prices of Methanol and Formalin during that year. After 2013-14, however, the increase in the cost of input material and labours *viz.* gas, power and employees cost *etc*. coupled with a slump in price of Methanol and Formalin in the international market had adversely affected the operational results of the Company.

Planning

2.8 An appropriate long-term/short-term plan is helpful for the Company to ensure production at reasonable cost so as to facilitate replacing the overaged plant and machinery in a systematic and timely manner without hindering the normal production process. There was absence of a comprehensive long-term planning mechanism by the Company as regards production and marketing of Methanol and Formalin. Further, the Company prepared isolated project specific plans for executing capital projects from time to time. For the production planning, the Company prepared short-term

production plans based on the expected plant availability during the ensuing year. There was no system of planning the marketing operations and *ad hoc* allocation of funds were made from time to time based on the requirement. Thus, a long term vision of Company's operations through a perspective/long term planning mechanism was missing.

Project Management

2.9 The Company, considering the good demand for Methanol, Formalin, Acetic Acid and other downstream products of Methanol in the domestic and international markets, planned (2000) to augment its existing production of Methanol (100 TPD) and Formalin (100 TPD). These plants were operational for 28 years against its reasonable life of 15 years. This led to major inefficiencies and high production cost on account of high consumption of energy, forced outages due to frequent breakdowns and high costs of maintenance.

The Company in order to arrest the above deficiencies, revamped (August 2012) the existing Formaldehyde Plant from 100 TPD to 125 TPD at a cost of ₹ 4.26 crore. The Company had also planned (2009) to revamp and upgrade the existing Methanol plant by construction of a new integrated 500 TPD Methanol and 200 TPD Acetic Acid project at an estimated capital investment of ₹ 1,028 crore. The Company, thereafter deferred execution of 200 TPD Acetic Acid Plant and approved (August 2016) construction of a new 200 TPD Formaldehyde Plant at an estimated cost of ₹ 55.00 crore, which is still in the planning stage. Deficiencies noticed with regard to planning and project management are discussed in the succeeding paragraphs.

A. 125 TPD Formaldehyde plant:

Delay in revamping/capacity expansion of existing plant

2.9.1 The existing 100 TPD Formaldehyde Plant was planned (October 2008) to be revamped to 125 TPD at an estimated cost of ₹ 4.17 crore, with a view to increase profits by optimising the sale of Formalin[5] by converting more of the Methanol into Formalin. Accordingly, work order was issued (October 2008) to M/s ENPRO Projects Consultant (P) Limited for providing consultancy services relating to preparation of basic design and detail engineering, assistance in procurement, erection and commissioning of the capacity expansion project. Simultaneously, eight work orders for execution of different components of revamping the project were awarded (August 2008 to June 2011). Though the project was scheduled to be completed by October 2009, the revamping project could finally be commissioned in August 2012.

[5] Market price of Formalin was significantly higher than Methanol, hence, selling of Methanol after converting into Formalin was beneficial than selling it (Methanol) unprocessed in the market.

The delay in commissioning of the project was due to delay by the contractors in supply and erection of works awarded to them. It was observed that out of the eight work orders issued by the Company, four work orders, *viz.,* (i) supply of reactor, blower and motor, (ii) packing materials, (iii) civil & structural works and (iv) consultancy, were completed by the contractors within a delay of 15 days to 4 months. One work relating to replacement of cooling tower was delayed by 3 years. The delay was mainly on account of considerable time taken (August 2010) by the Company to provide site clearance for supply of materials. The Company, thereafter also delayed in shutting down[6] (June 2011) the plant, which led to delay in final completion of the replacement work. Another two works *viz.* (i) Mechanical/Electrical/Instrumentation work of civil & structural works and (ii) Installation of electrical panels, cables, *etc*. were delayed, as these works depended upon the work of erection of Stainless Steel Electric Resistance Welding (SS ERW) pipes.

The Company issued (June 2011) purchase order for procurement of SS ERW pipes[7] in favour of M/s Prakash Steelage at a contract value of ₹ 11.19 lakh after 19 months of the scheduled date of commissioning (October 2009) of the project. This was mainly due to delay in updation of the vendor list by the Company. The procurement order for purchase of SS ERW pipes, which were essential for other related works, was finally executed in December 2011. Thus, non-synchronisation of various project works led to delay in commissioning of the project with corresponding loss of production of 21,216 Metric Tonne (MT)[8] of Formalin valued at ₹ 23.30 crore.

In reply, the Company stated (October 2016) that there was poor response from reputed vendors for supply of material and it had to float the Notice Inviting Tenders (NIT) several times before issuing the work order. It was further stated that change in specification of pipe fittings in order to cope with the existing material of construction also led to delay.

The reply of the Company is not justified, as it should have updated the vendors list at regular intervals so as to avoid delay in procurement of equipment for urgent requirements.

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[6] The existing 100 TPD Formaldehyde plant was being revamped to 125 TPD, hence to upgrade the existing components in the plant, the plant had to be shutdown.

[7] SS ERW pipe is a mechanical fitting in construction.

[8] The loss has been worked out based on the actual production (84.55 *per cent*) achieved during 2012-13, for the period (2 years and 9 months) of delay (from October 2009 to August 2012) *viz*. 25 MT x 365 x 84.55 *per cent*.

B. Integrated 500 TPD Methanol

2.9.2 The Company earlier (2000) considered revamping of existing Methanol Plant from 100 TPD to 130 TPD at an estimated cost of ₹ 31 crore. This plan for revamping was, however, abandoned. The Company, instead preferred (August 2010) to invest in the Integrated 500 TPD Methanol plant (Integrated project) which also included construction of 5 Mega Watt Captive Power Plant. The Integrated project intended to increase the capacity for production of Methanol and avail optimum benefit by bringing down the cost of production. Inability of the Company to take a decision between 2000 and 2010 indicates indecisiveness on part of the management, which set back the project by many years.

The audit findings relating to implementation of the Integrated Project have been discussed in the succeeding paragraphs.

Delay in approval of project

2.9.3 The Company submitted (November 2011) a detailed project proposal, for construction of the Integrated Project to the GoA for approval. The Public Investment Board (PIB), GoA accorded the in-principle approval (December 2011) to the proposal, subject to certain terms and conditions to be fulfilled by the Company, before approval of the project by the Cabinet of GoA. The terms and conditions *inter alia* required the Company to (i) enhance the authorized share capital of the Company to ₹ 350 crore (ii) finalize share capital participation by Oil India Limited (OIL) (₹ 129 crore) and Assam Gas Company Limited (AGCL) (₹ 25 crore); (iii) finalize the gas supply agreement; (iv) obtain the sanction of term loan from Banks; and (v) to obtain all statutory clearances for the project before sanction of share capital contribution (₹ 140 crore) by GoA. Subsequently, the OIL offered (January 2013) to increase its participation in the equity share capital of the Company to 49 *per cent* (₹ 228 crore). To accommodate the proposal of OIL, PIB directed (December 2013) the Company to enhance its Authorised Share Capital to ₹ 500 crore. The PIB approved (December 2013) the integrated project which was finally approved by the Cabinet in February 2014.

The delay in final approval of the project was mainly on account of belated change in the capital structure of the Company, which was necessitated due to enhancement of share participation by OIL. This delay of over two years (December 2011 to February 2014) for approval of project also led to corresponding delay in receipt of sanctioned funds from GoA, as well as escalation in the project cost from ₹ 1,028 crore to ₹ 1,990 crore. Owing to this significant cost escalation, the Company changed (August 2016) the project components, by replacing the construction of the 200 TPD Acetic Acid plant with construction of a 200 TPD Formaldehyde plant, which

involved comparatively lower cost. The total cost of the new Integrated project after change in its components stood at ₹ 1,340 crore (October 2016).

Delay in delisting of shares

2.9.4 The Company had planned the Integrated Project at an estimated cost of ₹ 1,028 crore. The Capital investment (₹ 1,028 crore) required for the project was to be availed through equity contribution of ₹ 393 crore[9] from OIL, GoA and AGCL. The remaining amount of ₹ 635 crore was to be arranged through long term borrowings from banks. OIL informed (September 2012), GoA, AIDC (holding Company) and the Company that, since equity shares of the Company and OIL were listed with the Bombay Stock Exchange (BSE), the capital infusion by OIL could be completed only after delisting of the Company's shares from the BSE. AIDC, however, initiated (May 2014) the process of delisting after 20 months of the suggestion (September 2012) made by OIL and the same was pending till date (October 2016).

The inordinate delay in initiating the delisting process by AIDC had resulted in share capital amounting to ₹ 228 crore not being infused by OIL till date (October 2016). Meanwhile, the Company had finalised agreement for availing the term loan of ₹ 635 crore from a consortium of 10 banks led by State Bank of India (SBI). Accordingly, a loan agreement was entered into (July 2013) with the consortium of banks and M/s SBICAP Trustee Company Limited was appointed (June 2013) as the security trustee for the term loan. As per the loan agreement, the Company was required to infuse minimum 25 *per cent* of equity capital for drawal of term loan. The Company could not fulfil this condition as OIL's capital contribution (₹ 228 crore) was not received pending delisting of the shares. Hence, no loan funds could be drawn by the Company even after the expiry of 3 years of the loan sanction/agreement.

It was further observed that the consortium of banks had subsequently declined (August 2016) to disburse the sanctioned loan citing expiry of validity period, change of project components (as discussed under ***paragraph 2.9.3)*** as well as price escalation. The consortium of banks had accordingly advised the Company to apply for the loan afresh. The Company appointed (August 2016) M/s SBI Capital Markets Limited for preparation of the Project Information Memorandum (PIM) for submission to the bank for the fresh loan proposal. It was observed that the Company had incurred an aggregate expenditure of ₹ 2.32 crore[10] towards various fees and charges while finalising the loan agreement (July 2013) for availing the term loan of ₹ 635 crore. The Company, however, could not derive the intended benefit of the expenditure

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[9] OIL would contribute ₹ 228 crore (49 *per cent* of the share capital), with ₹ 140 crore being contributed by GoA and ₹ 25 crore being contributed by AGCL.

[10] The expenditure includes upfront fees to the consortium of banks (₹ 0.72 crore), Acceptance fees (₹ 0.02 crore) and SBI Cap (₹ 1.58 crore).

(₹ 2.32 crore) incurred towards availing the bank borrowings due to delay in delisting of Company's shares from BSE.

In reply, the Company attributed (October 2016) the delay in delisting of shares to indecision of the holding Company (AIDC). The Company further stated that the expenditure incurred for sanctioning of bank loan was necessary and the Company would draw the funds from the banks in due course.

The reply is not acceptable as the Company should have pursued the issue with AIDC/GoA at appropriate level to speed up the delisting process and avoid the expiry of the term loan validity period.

Operational Management

2.10 The Company had started (June 1976) commercial operations after commissioning of its Methanol Unit-I (7,000 Metric Tonne per annum equivalent to 21 Tonnes per day) and Formalin Unit-I (16,500 Metric Tonne per annum). The Methanol Unit-I was, however, shut down in February 1998 while the Formalin Unit-I was also shut down in January 1999. At present, the Company had been operating with two manufacturing plants namely, Methanol Unit-II and Formalin Unit-II as per details summarized in ***Table 2.1*** below:

Table 2.1

Name of the Plant	Installed capacity (in MT)	Name of the product	Date of commissioning	Age as of October 2016
Methanol Unit II	33,000 per annum	Methanol	12-09-1988	28 years
Formalin Unit II	41,250[11] per annum	Formalin	30-09-1997	19 years

It may be noticed that as against the normal operational life of 15 years, Methanol Unit-II and Formalin Unit-II had already completed 28 years and 19 years of their operations as of October 2016 respectively.

Target achievement and Production process

2.10.1 The unit-wise details of targeted production of Methanol and Formalin against the installed capacity of two plants *vis-à-vis* the achievements, there against for five years from 2011-12 to 2015-16, are summarised in ***Table 2.2***:

[11] Installed capacity increased from 33,000 per annum to 41,250 per annum with effect from F.Y 2012-13

Table 2.2

Year	Methanol (in MT)			Formalin (in MT)		
	Capacity	Target	Actual	Capacity	Target	Actual
2011-12	33,000	25,900	26,994	33,000	27,015	29,888
2012-13	33,000	32,850	33,546	41,250	30,975	34,877
2013-14	33,000	30,400	28,822	41,250	38,672	37,363
2014-15	33,000	30,600	32,168	41,250	40,225	39,100
2015-16	33,000	30,675	30,172	41,250	39,930	42,304
Total	**1,65,000**	**1,50,425**	**1,51,702**	**1,98,000**	**1,76,817**	**1,83,532**

It can be seen from ***Table 2.2*** that, during the period of five years, the Company was able to achieve the targeted production for both the products. It could be further noticed that as compared to the installed capacity of 1,65,000 MT (Methanol plant) and 1,98,000 MT (Formalin plant) for overall period of five years, the overall production targets for 2011-16 were fixed at much lower level at 1,50,425 MT (Methanol plant) and 1,76,817 MT (Formalin plant). Further, as compared to the production capacity of two plants during 2011-16, there was under achievement of production by 13,298 MT (Methanol plant) and 14,468 MT (Formalin Plant).

In reply, the Company accepted (October 2016) the facts and stated that the production targets were fixed for both the plants after taking into account the unprecedented lower gas pressure, power failure, maintenance and unseen problems, considering old age of the plants.

The reply is not tenable as the Company could have addressed the problems of power failure and voltage dip by setting up the Captive Power Plant, which was also recommended (November 2007) by the COPU as discussed under ***paragraph 2.18*** *infra*. Further, excess outages on account of maintenance jobs and unseen plant problems were linked to the old age of manufacturing plants. The Company needs to expedite replacement of these plants with the new plants in a timely manner.

Production Efficiency

2.11 The efficiency of production plants depends on 'input' as well as 'output' efficiency. While the input efficiency is linked mainly with the continuity in supply of quality input material (gas, methanol crude *etc*.) at reasonable costs, the 'output efficiency' is connected with several other factors such as plant load factor, plant availability, capacity utilization and planned and forced outages. The following points were observed with reference to efficiency of production plants of the Company:

Input efficiency

Lapses in gas transportation agreement

2.11.1 As per gas transportation agreement entered (May 2003) between the Company and AGCL, AGCL was to transport the gas from OIL's off-take point to the Company's in-take point through its own pipelines and deliver the same at the Company's 'in-take point' at a minimum pressure of 14.2 kg/cm^2 g.

It was, however, observed that the Company could not ensure supply of gas by AGCL to the Methanol Plant at the required pressure, due to which the Methanol plant faced problems of low pressure of gas from time to time. During 2012-16, the plant was under forced shutdown for total 147.38 hours due to low pressure of gas thereby causing loss of production of Methanol aggregating 614 MT valued at ₹ 0.83 crore. It was further, seen that the transportation agreement did not contain any enabling provisions for levying the penalty on AGCL to compensate for the loss of production due to inconsistency in pressure of gas.

In reply, the Company accepted (October 2016) the facts and stated that the matter regarding low pressure of gas had been taken up with AGCL and OIL through GoA.

The reply is not acceptable in view of the fact that there was no persuasion from the Company for inclusion of any penal clause in the gas transportation agreement to compensate the production loss on failure of AGCL, to deliver gas at requisite pressure.

Transportation Cost

2.11.2 The transportation cost of gas was fixed (May 2003) by AGCL at ₹ 320 per 1,000 standard cubic metre (scm) with an annual escalation of 3 *per cent* at 80 *per cent* Minimum Demand Charge (MDC) of the committed quantity, the transportation cost was fixed by AGCL based on the estimated capital cost (₹ 49.67 crore) of laying the pipelines required for gas transportation. Scrutiny of records revealed that the actual cost incurred on the project was ₹ 28.92 crore. The AGCL, however, did not revise the cost of transportation considering the actual cost. The acceptance of the transportation cost, which was fixed on the basis of estimated cost, without any clause for revision of the cost based on the actual cost had led to an extra expenditure of ₹ 1.83 crore to the Company during 2004-05 to 2015-16.

In reply, the Company accepted (October 2016) the facts and stated that the actual cost of the project had not been considered by AGCL.

The Company should have pursued the issue with AGCL immediately after completion of the work of laying the pipeline, which could have helped the Company in paying lower transportation costs to AGCL.

Minimum Demand Charges

2.11.3 Under the gas transportation agreement entered with AGCL, the Company had booked (May 2003) total 0.15 mmscmd[12] of gas for transportation through AGCL's pipelines. A summarised position of quantity of gas booked under the transportation agreement *vis-à-vis* the actual requirement of gas during the five years from 2011-12 to 2015-16 has been given in ***Table 2.3*** below**:**

Table 2.3

Sl. No.	Particulars	2011-12	2012-13	2013-14	2014-15	2015-16
1.	Quantity of gas booked under Transportation Agreement with AGCL (mmscmd)	0.15	0.15	0.15	0.15	0.15
2.	Requirement of gas as per initial planning[13] (mmscmd)	0.138	0.138	0.138	0.138	0.138
3.	Excess Gas booked (mmscmd) (1 - 2)	0.012	0.012	0.012	0.012	0.012
4.	Avoidable expenditure on MDC[14] (₹ in crore)	0.34	0.37	0.39	0.23	0.30

The Company had the commitment of availing supply of gas from OIL to the extent of 0.15 mmscmd. Following the shutdown (February 1998) of the Methanol Unit-I, however, the consumption of gas declined to 0.11 mmscmd. Thereafter, the Company, after considering the proposed expansion of Methanol Unit–II from 100 TPD to 130 TPD and setting up the Captive Power Plant, reduced (November 2002) the booked quantum of gas from OIL from 0.15 mmscmd to 0.138 mmscmd.

The Company, however, entered (May 2003) into a gas transportation agreement with AGCL with a booked quantum of 0.15 mmscmd for a period of 15 years despite knowing (November 2002) its actual requirements (0.138 mmscmd). As per the agreement, if the consumption of gas fell below 80 *per cent* of the monthly committed booked quantum of 0.15 mmscmd, the Company was liable to pay Minimum Demand Charges (MDC) at applicable rates. The agreement also provided for amendment to the terms with mutual consent of both the parties.

It was observed that the Methanol expansion plan (100 TPD to 130 TPD) was abandoned (February 2011) by the Company, while the construction of the Captive Power Plant was also postponed (2007-08). As a result, the maximum requirement of gas for the existing 100 TPD Methanol plant was even lower at 0.11 mmscmd (October 2016). It was noticed that actual drawal of gas during 2011-16 by the

[12] Million matric standard cubic metre per day (mmscmd)

[13] This includes gas requirements for expansion of Methanol and captive power plant.

[14] MDC is payable to AGCL for less transportation and not to OIL.

Company was always less than 80 *per cent* of the monthly committed quantity. Accordingly, AGCL enforced the MDC clause based on committed booked quantum of 0.15 mmscmd and recovered an amount of ₹ 1.63 crore (April 2011 to March 2016) as transportation charges over and above the actual drawal.

Though, the Company requested AGCL on several occasions, to revise the MDC clause considering the reduced quantum of gas (0.138 mmscmd) committed for supply by OIL, this request was not accepted by AGCL and the terms of agreement were yet to be modified (October 2016).

Thus, due to booking of higher quantum of gas for transportation than the actual requirement and failure to amend the terms of the transportation agreement led to avoidable expenditure of ₹ 1.63 crore to the Company during 2011-16.

In reply, the Company accepted (October 2016) the facts and stated that the matter regarding review of gas supply and MDC had been taken up with AGCL several times since 2008, but AGCL declined to consider the request during the tenure of the Agreement.

Consumption of gas

2.11.4 The specific consumption of gas, in the form of process-feed stock as well as fuel for the reformer furnace in the Methanol plant was determined (March 1989) at 963.33 scm per MT of Methanol produced. During 2011-16, the Company produced 1,51,702 MT of Methanol after consuming 167.99 mmscmd of gas as against the norm of 159.72 mmscmd [15], leading to an excess consumption of 8.27 mmscmd of gas. This resulted in excess expenditure of ₹ 7.24 crore[16] during 2011-16 towards cost of excess gas consumed.

In reply, the Company stated (October 2016) that during the process of shutdown and start-up of plant on account of any scheduled or unscheduled maintenance, gas was consumed even without production of Methanol.

The fact, however, remained that the excess consumption of gas in the production process was linked with the ageing of the Methanol plant and the Company should expedite the process of replacement of the old plant with the new plant.

[15] Guarantee norms for feedstock (146.14 mmscmd) + Fuel (13.58 mmscmd)

[16] 8,268.41 scm x ₹ 8,760.98 (Average price of gas during the five years up to 2015-16)

Consumption of Methanol in the Formalin plant

2.11.5 The usual life span of the silver catalyst[17] (also known as reactor catalyst or catalyst) is three to eight months. Besides, the purity of the feed flow rates is also crucial in the production process. Since the catalyst is very receptive to contamination and presence of sulphur or transition metal could destroy the reaction and reduce the production to zero. When these processes are not followed, the Methanol contents and its consumption per unit remain high. As per operational procedures of the Company, 0.469 MT of Methanol was required for the production of 1 MT of Formalin at a proportional weight of 37 *per cent* of Formaldehyde, 3 *per cent* of Methanol and 60 *per cent* water.

During the five years from 2011-12 to 2015-16, the Company produced 1,79,673 MT of Formalin by consuming 88,310.10 MT of Methanol as against the norms of 84,266.64 MT. Thus, there was an excess consumption of 4,043.46 MT of Methanol valued at ₹ 5.46 crore[18].

It was further observed that during the period from September 2012 to December 2014, the content of Methanol in production of Formalin ranged from 3.20 *per cent* (July 2014) to 7.92 *per cent* (October 2014) as against the maximum permissible norm of 3 *per cent.* Although, the useful life of catalyst was three to eight months, during 2011-16, there were delays ranging from 9 to 14 months in charging the catalyst, thereby resulting in high content of Methanol in the Formalin produced.

In reply, the Company accepted (October 2016) the facts and stated that the consumption of Methanol in the formalin Plant depends on the number of plant start-ups and shut-downs, ageing of the silver catalyst and air to methanol mixture.

The reply of the Company was indicative of deficiencies in adopting systematic maintenance procedures and in charging the catalyst in a timely manner, which could have helped it in bringing down the processing costs of Formalin.

Output efficiency

Plant Load Factor

2.12 Plant Load Factor (PLF) refers to the ratio between the actual production and the maximum possible production at installed capacity. Each of the two production plants of the Company (*viz.* the Methanol and Formalin plants) had an installed capacity of 100 TPD. The installed capacity of Formalin plant was, however, increased

[17] A silver catalyst is a substance which is implemented in the reactor to facilitate the Formalin production process without undergoing any transformation in itself.

[18] 4,043.46 MT x ₹ 13,500 (the lowest realization price during the period)

(August 2012) from 100 TPD to 125 TPD. However, the operating capacity of the plant at 100 *per cent* plant capacity utilisation was fixed based on the standard PLF of 90.41 *per cent*[19] as worked out by the Company.

The Company could not achieve the standard PLF (90.41 *per cent)* during 2011-16 except (2012-13) for Methanol plant (91.91 *per cent)* and (2015-16) for Formalin plant (92.47 *per cent)*. One of the primary reasons for low PLF was forced outages on account of avoidable reasons. Cause-wise analysis of outages[20], for the period 2011-16, revealed that 21.63 *per cent* of outages in Methanol plant (647.90 hours) and 18.98 *per cent* of outages in Formalin plant (497.14 hours) had occurred on account of mechanical, electrical and instrumental faults, which could have been avoided through planned maintenance. Thus, there was production loss of 2,440.64 MT (647.90 hours x 3.767 MT[21]) of Methanol and 2,246.58 MT (497.14 hours x 4.519 MT[22]) of Formalin, valued at ₹ 3.29 crore[23] and ₹ 1.91 crore[24] respectively on account of these controllable outages.

It was observed that the Company had not taken corrective action for replacement of mechanical instruments in a timely manner. Although, the Company prepared the annual plan for maintenance of the plant, it had not specified the detailed time schedule for carrying out various maintenance works. In absence of this, the regular upkeep and maintenance of the Methanol plant was not monitored and ensured.

Further, considering the old age of the Methanol plant, the BoD of the Company recommended (March 2016) a Hazard and Operability (HAZOP) study of the plant. The study was meant to identify and evaluate problems that might represent risks to equipment or prevent efficient operation of the plant. However, no such Study was carried out till date (October 2016).

In reply, the Company stated (October 2016) that 100 *per cent* utilisation of its capacity cannot be expected from a 28 year old plant due to various constraints. It was further stated that all possible efforts were being made to avoid any unplanned

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[19] The operating capacity of two plants was fixed by the Company on the basis of 330 stream days after excluding 35 days for annual maintenance {(330 stream days ÷ 365 days) x 100 = 90.41 *per cent*}.

[20] Outages refer to the period for which the generating unit is not available for power generation.

[21] The production loss has been worked out based on 100 TPD per 24 hours at standard PLF of 90.41 *per cent* {(100 TPD ÷ 24 hours) x 90.41 *per cent.*

[22] The installed capacity of Formalin plan was increased from 100 to 125 TPD with effect from 2012-13. Hence, the production loss has been worked out based on the average of 100 TPD (2011-12) and 125 TPD (2012-13 to 2015-16) per 24 hours at standard PLF of 90.41 *per cent* (4.999 MT x 90.41 *per cent*).

[23] 2,440.64 MT x ₹ 13,500 = ₹ 3.29 crore (calculated at the lowest realization price during the period)

[24] 2,246.58 MT x ₹ 8,500 = ₹ 1.91 crore (calculated at the lowest realization price during the period)

shutdowns to reduce production losses. As regards HAZOP study, it was mentioned that the same had been initiated and would be completed in due course of time.

The fact, however, remained that the production loss on account of controllable factors could have been minimised or avoided through periodic health assessment of important equipment and by taking timely corrective action.

Energy conservation

2.13 The energy efficiency of a manufacturing unit largely depends upon conducting of energy audits, setting up of energy usage norms, adoption of energy efficiency programmes and implementation of appropriate management controls. The Company engaged (July 2003) the Petroleum Conservation Research Association (PCRA) for conducting a third party energy audit.

As per the PCRA Energy Audit Report, the flue gas analysis of the Boiler and Reformer furnace showed a considerable amount of excess air, leading to substantial amount of stack[25] losses in terms of gas consumption. PCRA, accordingly, recommended (July 2003) that flue gas analysis should be conducted at regular intervals as reduction in excess air could result in savings to the tune of ₹ 17.39 lakh *per* annum by reducing the consumption levels of gas. It was, however, observed that the Company did not carry out flue gas analysis (October 2016).

With a view to carry out energy conservation and its allied activities under Section 2(S) of the Energy Conservation Act, 1991, the Company constituted (September 2007) an Energy Conservation Cell (ECC). Some of the important activities to be carried out by the Energy Cell included formalizing an energy management policy statement, setting up and periodically review the energy monitoring and reporting system and monitor the parameters contributing to energy costs, initiate measures for energy efficiency and review their implementation.

It was, however, seen that the ECC was not active and had not taken any action to carry out the above mentioned activities towards better energy management even after 9 years of its constitution (October 2016).

In reply, the Company accepted (October 2016) the facts and stated that the technology employed in the Methanol plant did not have any provision for sampling of flue gas in the stack. The Company, however, assured that the ECC would be reconstituted.

[25] Stack losses typically involve both excess air and stack temperatures. The amount of heat lost depend on the temperature and volume of gas leaving the boiler.

The fact, however, remained that the Company had not adhered to the recommendations of PCRA in a timely manner and was deficient in adopting energy conservation measures.

Power consumption in residential units

2.13.1 For running the manufacturing units and supply to the residential quarters, the Company purchased electricity from Assam Power Distribution Company Limited (APDCL). The electricity requirement was also partially met from the captive generation through its own turbo-generator. During 2011-16, the Company received 524.52 lakh kWh of power from APDCL at a total cost of ₹ 35.22 crore, which alone constituted 16.28 *per cent* of the total variable cost (₹ 216.34 crore) of production.

It was observed that the electricity was being supplied to the residential quarters as well as plants and factory area from the same supply panel without any provision for separate metering for domestic and commercial consumption. The Company was making recoveries from its employees on the basis of flat monthly rates irrespective of the quantum of actual consumption. No steps were, however, taken for recovery of energy bills based on actual consumption.

In reply, the Company accepted (October 2016) the facts and stated that it was in the process of installing energy meters in the residential quarters and the recovery of energy bills would be made based on actual consumption.

The reply indicates that the system of unmetered supply adopted by the Company did not provide any incentive to effect economy in the use of electricity. Hence, there is a need for the Company to expedite the works and ensure that energy bills in township area are served based on actual consumption.

Delay in execution of water supply agreement

2.13.2 Treated Raw Water was used for meeting the water requirements of the manufacturing plants. The water for the plants was mainly sourced through Brahmaputra Valley Fertilizer Corporation Limited (BVFCL) and Assam Power Generation Corporation Limited (APGCL).

It was observed that BVFCL had been supplying (since August 2006) clarified water to the Company at ₹ 5.09 per Cubic Metre (CUM). BVFCL increased (May 2009) the price of clarified water from ₹ 5.09 to ₹ 25.46 per cum. Considering the high cost, the Company approached (November 2011) M/s Poly Enterprise Limited (supplier) for supply of clarified water at a lower cost. The supplier offered a rate of ₹ 8 per cum and also agreed to install a pipeline between the treatment plant and the hook-up point of the Company's existing pipeline at its own cost.

Accordingly, the Company conducted (November 2011) quality checks and communicated (February 2012) the shortcomings noticed to the supplier for necessary corrective action. Thereafter, a Letter of Intent for the supply of water was issued (July 2012) to the supplier. The Company once again verified (October 2013) the facility of the supplier and identified shortcomings, which were also attended and rectified (December 2013) by the supplier. The facility was again quality checked (January 2014) and finally the purchase order was issued with the supply of water commencing in the same month.

It is clear that there had been an inordinate delay in the execution of the water supply contract with the supplier despite the lower rate offered by the supplier than that of BVFCL. The delay involved a loss of ₹ 19.25 lakh to the Company, in terms of potential savings towards the cost of clarified water (July 2012 to May 2014).

In reply, the Company stated (October 2016) that the process started only after November 2011 and considerable time was required by the supplier to create the facility fit and suitable for consumption.

The fact, however, remained that there had been inordinate delay in completing the process of execution of the contract by the Company, which needed to have been expedited, considering the high cost involved in procurement of water from BVFCL.

Marketing and sales performance

2.14 Although the Company had captive demand for Methanol for using the same as feedstock in its own production process, the Company faced stiff competition with private producers with regard to sale of Formalin in the open market, which were sold in an around the State areas[26] and in neighbouring countries[27].

It was observed that the sales of Formalin in the North-eastern region (NER) showed an increasing trend during 2011-16. The sales of Formalin by the Company in West Bengal recorded a steep decline from 8,810.10 MT (2012-13) to 4,763.49 MT (2015-16). As regard Methanol, the consolidated sales figures of the Company in North India and Bangladesh recorded a steep decline from 9,757.75 MT (2012-13) to 5,149.70 (2015-16). Some of the deficiencies noticed with regard to marketing strategies adopted by the Company are as follows:

- Every change in the price of Methanol and Formalin in the international and domestic market had corresponding impact on the sales performance of the Company. As such, the BoD directed (February 2016) the Company to fix the price of Methanol and Formalin after a thorough study. The Company was, however, yet to take action on the directions of BoD (October 2016).

[26] Northern Eastern Region, West Bengal, Bihar and Jharkhand.

[27] Bangladesh, Nepal and Bhutan

- In order to optimise the profitability of the Company, the BoD directed (December 2011) it to import Methanol from the international market and also to work out the right product mix (proportion of in-house production and imported Methanol). In the absence of any concrete efforts on part of the Company, the BoD again directed (March 2016) it to import Methanol from the Kandla Port and concentrate its marketing activities in North India so as to generate more revenue. The Company, however, had not taken any concrete action to comply with the above directions of BoD (October 2016). Thus, the Company could not ensure adequate supply of Methanol at the cost viable for outsourcing the production of Formalin through conversion agents[28]. As a result, the Company had to keep in abeyance its expansion plans for marketing of Formalin in the States of Bihar, Uttar Pradesh and West Bengal.
- During a survey conducted (May 2016) by Audit in the branch offices of the Company in West Bengal and Assam, it was observed that the Company had neither fixed any accountability for collection of customer feedback nor set any targets at field office level to monitor and improve its sales performance.

Thus, it can be seen that the Company had not taken adequate steps for optimisation of its profit through the right product mix. The Company neither adhered to the directions of the BoD for import of Methanol from Kandla Port nor could it utilise the service of conversion agents for expansion of market for its products.

In reply, the Company stated (October 2016) that it was in the advanced stage of importing and trading Methanol to increase its market share and turnover. It further stated that all statutory requirements and infrastructure creation in this regard have already been completed.

The fact, however, remained that there had been inordinate delay in initiating the process of import of Methanol by the Company. As a result, the Company could not venture into potential markets for expansion of its sales activities. The reply was also silent on other important issues relating to collection of customer feedback, fixing of sales targets, *etc*.

Environmental issues

2.15 The GoI has enacted various Acts and Statutes for minimizing the adverse impact of the industrial activity on the environment. The Ministry of Environment and Forests (MoEF), GoI and the Central Pollution Control Board (CPCB) have also been vested with powers for this purpose under various Statutes. At the State level, the Pollution Control Board, Assam (PCBA) is the regulatory agency for ensuring compliance with the provisions of these Acts and Statutes. Audit scrutiny, relating to

[28] A conversion agent is engaged for conversion of Methanol into Formalin and distributes the same in potential markets.

compliance of the Company with the provisions of various Acts in this regard, revealed the following:

Operation of plants without required 'consent to operate'

2.15.1 Under the provisions of the Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981, a formal consent (*viz.* 'consent to operate') from the PCBA was to be obtained/renewed to operate Methanol and Formalin production plants, within the month of November, of the year immediately preceding the financial year in which the previous consent was due for expiry. The consent letter contains different conditions and stipulations with regard to air and water pollution to be complied with by the production units *viz.* compliance to ambient air quality, level of pH of water, quality of flue gas and noise level *etc*. In case of non-compliance with the terms and conditions, PCBA was empowered to take appropriate action (including suspension of operations) under various statutes.

The Company applied to the PCBA for renewal of consent on five occasions during 2011-16, with delays ranging from 42 (2013-14) to 115 (2014-15) days from the due date[29]. Consequently, renewal of consent by PCBA for the above periods was also delayed by 57 (2013-14) to 120 (2011-12) days. As such, the operation of these plants was carried out without consent of the PCBA for the periods of delay in renewal.

In reply, the Company stated (October 2016) that the delay was due to the time taken in analysis of various parameters of environment by the third party.

The reply is not acceptable as the Company should have taken timely action in the matter so as to ensure that environmental analysis is carried out in a time bound manner and the 'consent to operate' the plant is obtained on time from PCBA.

Monitoring facilities and equipment

2.15.2 With a view to minimise the incidence of water pollution by disposal of industrial waste, the Company installed an Effluent Treatment Plant (ETP) comprising of 'Tilted Plate Interceptor[30]' for collection of wastes such as spill oil and grease. The ETP had an installed capacity to treat 600 cum of wastes per day The Company after collection of spill oil and grease treated the wastewater in a lagoon[31] and then the treated water was drained off. At the outlet of the ETP, the Company had installed the

[29] November of preceding financial year

[30] It is a separator used for separation of free oil from effluent water.

[31] Lagoon is a treatment pond provided with artificial aeration to promote biological oxidation of waste water.

pH meter[32] to measure the content alkaline in the wastes. During 2011-16, the daily effluent generated on an average was 190.80 cum per day.

On examination of records relating to alkaline content in the wastes, it was observed that against the permissible limit of 5.50 to 9.0 pH, the actual pH was in the range 6.18 and 7.75 pH. The Company, however, did not have a regular system of monitoring the level of concentration of Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD) and Total Dissolved Solids (TDS). Although, the Company was to analyse samples on a real-time basis, the Company collected samples and analysed on 40 occasions only during 2011-16. The result of analysis revealed that against the permissible limit of 30 milligrams per litre (mg/l), 250 mg/l and 2100 mg/l for BOD, COD and TDS, the level of concentration was in the range 12 to 23 mg/l, 92 to 142 mg/l and 202 to 496 mg/l respectively. However, to ensure continuous monitoring of effluent generated from the plants, the installation of an online effluent monitoring system was necessary.

Further, as per an MoEF notification (September 2009), ambient air quality data was also to be collected, monitored and displayed by the Company at a convenient location. The Company was also required to upload and update the data on its website periodically. The CPCB had also directed (October 2015) the Company to install online monitoring systems and link the data to the CPCB website. On this being pointed out (June 2016) by Audit, the Company installed (August 2016) an 'online monitoring system' and had also linked the data against the system to the CPCB's website.

Further, as per the Water (Prevention and Control of Pollution) Cess Act, 1977, for the purpose of measuring and recording the quantity of water consumed, it is mandatory to affix meters of prescribed standards at specified places. Audit scrutiny revealed that the Company had not installed the required meters to record the actual water consumption (September 2016).

No specific reply to the audit observation was submitted by the Company on the issue (October 2016).

Human Resource Management

2.16 The Company implemented the recruitment process after getting approval from GoA, on proposals approved by the BoD. The summarised position of actual manpower *vis-a-vis* the sanctioned strength of the Company during 2011-16 is given in ***Table 2.4***.

[32] A pH Meter is a scientific instrument that measures the hydrogen-ion concentration (or pH) in a solution, indicating its acidity or alkalinity.

Table 2.4

Sl. No.	Particulars	2011-12	2012-13	2013-14	2014-15	2015-16
1.	Sanctioned strength	483	483	482	482	482
2.	Man-in-Position	369	355	365	366	362

The Table above shows that the actual manpower during 2011-16, was below the sanctioned strength of the Company. It was, however, seen that the Company did not prepare any strategic plan to improve the scarcity of manpower.

In reply, the Company stated (October 2016) that, since both of its manufacturing plants are continuous process plants, recruitment of manpower was done depending upon the business exigencies as well as manpower needs of different departments.

The fact, however, remained that the absence of a strategic plan in regard to human resource management had led to substantial amount being spent on payment of overtime allowance, as discussed subsequently.

Overtime Allowance

2.16.1 Due to shortage of manpower, the Company was regularly deploying its existing staff for undertaking additional works against payment of overtime allowance (OT). The Company had paid OT aggregating to ₹ 6.08 crore during 2011-16. The payment of OT was highest in the Electrical Department (₹ 1.13 crore) during 2011-16. There was a continuous growth in overtime expenditure from ₹ 0.72 crore (2011-12) to ₹ 1.77 crore (2015-16).

Further, Section 64 of the Factories Act, 1948 *inter alia* provides that OT shall not exceed 50 hours per employee per quarter (*i.e.* 200 hours per employee per year). The average OT payment per year, however, for the Electrical Department of the Company ranged between 351 hours and 413 hours (except during 2014-15), which was much higher than the statutory limit of 200 hours per year.

In reply, the Company stated (October 2016) that the issue was being constantly monitored at HoD level and resultantly, overtime wages had reduced by 40 *per cent*. It was further stated that necessary steps had also been taken for filling up critical vacancies in the near future.

The fact, however, remained that the OT paid (2011-16) was in excess of the statutory ceilings and there was a need for the Company to be more vigilant in this regard.

Monitoring and Internal Control

2.17 An effective internal control system of an organisation ensures achievement of organisational objectives, effective utilisation of resources, safeguarding of assets and availability of reliable information for decision making by the Company. The deficiencies noticed in the internal control system of the Company have been discussed as below:

- During 2011-16, the Company conducted internal audit through a Chartered Accountant only during 2014-16. Internal audit reports were silent on several vital areas of operation, such as efficacy of systems and controls, particularly in the manufacturing units, operational efficiency of plants, adherence to plans, policies and procedures, *etc.*;
- Although a documented Management Information System (MIS) in respect of the production plants was in existence, regular analysis and reporting of the data was absent. As a result, the targets set by the Company for subsequent years did not take adequate care of the constraints faced in achievement of targets during previous years, thereby leaving scope for recurrence of similar deficiencies in its operations.

Inventory Control

2.17.1 There was also no control mechanism in place to monitor the stock holding of the Company and ensure that the same remain within reasonable limits. The stock holding of the Company during 2011-16 ranged between 37 to 91 months consumption. As compared to the lead-time of 12 months required for the procurement of any item, the inventory holding was exceptionally high. At the end of 31 March 2016, the Company was holding inventory valuing ₹ 9.16 crore, including non-usable/moving items valuing ₹ 0.96 crore. Further, as the plants were old and the inventories were being carried forward at cost, these inventories might not yield their true value.

The deficiencies in the internal control system as discussed above, indicated systemic failures and the absence of an effective control mechanism, besides lack of accountability at different levels of the Company.

In reply, the Company stated (October 2016) that regular monthly analysis of the MIS would be done hereafter. In regard to inventory management, the Company stated (October 2016) that it had adopted the manual system for classification of inventory. It further added that, since the plant was very old, some inventories, which were not readily available in the market, had to be kept in stock for long periods, so as to run the plant smoothly. Further, it stated that the process of segregation of obsolete/unserviceable stocks had being initiated since 2014-15.

Compliance on the recommendations of COPU

2.18 The COPU made (12 November, 2007) three recommendations on paragraphs 2.1.11, 2.1.12 and 2.1.22 of the PA Report on the functioning of the Company, featured in the Report of Comptroller and Auditor General of India (Commercial), GoA for the year ended 2003-04. The status of compliance with regard to the COPU recommendations on the above three paragraphs, is detailed in subsequent paragraphs:

2.18.1 *Paragraph 2.1.11*

The Company received electrical power from the Assam State Electricity Board (ASEB) and, hence, hours lost due to power failures and voltage dips were not controllable in the short run. The Company was, however, considering setting up of a captive power plant, to avoid disruptions in production due to power failures.

COPU recommendation

COPU recommended that, in order to avoid such production losses due to power failures, a captive power plant should be set up and preventive maintenance should also be done to reduce such shut down hours.

Management reply

The Company stated (May 2006) that the captive power project was attached with the new Integrated 500 TPD Methanol project. The project scheduled to be completed by October 2017 was under construction.

Further observations by Audit

Audit observed that the proposal for construction of the new Integrated 500 TPD Methanol Plant was approved by GoA in February 2014 and the project included erection of the captive power plant. The project work was under progress with the rescheduled date of completion being October 2018.

2.18.2 *Paragraph 2.1.12*

During 1998-99 to 2002-03, the Company suffered production loss of 6,691.08 MT Methanol and 32,099.10 MT Formalin, valued at ₹ 6.01 crore and ₹ 19.39 crore respectively, due to forced shutdowns, which was primarily due to reformer tube failures and shortage of feed Methanol, respectively. This represented around 69 to 72 *per cent* of the total shutdown hours excluding shutdowns for power failures.

COPU recommendation

COPU recommended that the Company should be careful in future, to avoid such type of unfruitful expenditure.

Management reply

The Company stated (October 2016) that after revamping, the Formalin plant was running at its normal capacity without much loss of production.

Further observations by Audit

Audit observed that, during 2011-12 to 2015-16, the Company suffered production loss of 8,337.33 MT Methanol valued at ₹ 11.25 crore and 10,189.91 MT Formalin, valued at ₹ 8.66 crore. This represented around 69 to 95 *per cent* of total shutdown hours, excluding shutdowns for power failure.

2.18.3 *Paragraph 2.1.22*

During the five years from 1998-99 to 2002-03, the Company received 67.78 Million Units (MU) of power from ASEB at a total cost of ₹ 23.69 crore. Even though the cost of the electricity alone constituted 40 to 47 *per cent* of the total variable cost of production during 2000-01 to 2002-03, the actual consumption was not metered separately for each plant for comparing the same with the norms of 510 kWh per tonne of Methanol and 52 kWh per tonne of Formalin fixed for the purpose.

COPU recommendation

COPU recommended that the Company should install separate meters for each plant.

Management reply

The Company stated that after receiving the recommendation from COPU, it approached APDCL[33] for separation of the domestic feeder from the industrial feeder, so that the actual power consumption of the Methanol Plant could be arrived at. However, APDCL advised (February 2010) the Company not to separate the feeder.

Further observations by Audit

During 2011-16, the Company incurred ₹ 35.22 crore for purchase of power. The cost of electricity constituted 16.28 *per cent* of the total variable cost of production. However, separate meters for Methanol plant and residential area were not installed. Thus, the actual consumption for Methanol plant and residential area could not be ascertained by the Company for comparing the same with the norms.

[33] The erstwhile ASEB was unbundled and the power supply operations were handed over to APDCL.

Conclusion

- **The Company did not have a perspective/long term planning mechanism for its production and marketing activities as well as in execution of capacity expansion projects. There were considerable delays in completing the revamping of existing plant as well as construction of new integrated plant, due to non-synchronisation of project works and delay in availing the planned investment from the stakeholders.**

- **The Company could not exercise necessary controls over fuel linkage as well as supply and consumption of input material. The Company was also deficient in adhering to periodic maintenance schedules and timely replacement of the important equipment resulting in avoidable loss of production. Further, the Company could not effectively follow the control measures necessary for conservation of energy so as to tap the potential savings in production cost.**

- **Despite the directions of its Board of Directors, the Company had not applied the right product mix of imported and in-house produced Methanol to optimise the profitability.**

- **The internal control and monitoring mechanism of the Company was weak. The Company was deficient in fulfilling the statutory requirement to timely obtain the 'consent to operate' the manufacturing plants from the Pollution Control Board, Assam.**

Recommendations

- **The Company should strengthen its planning mechanism by devising long-term perspective plans in line with its laid down objectives and ensure completion of capacity expansion projects within the stipulated time;**

- **There should be a system for procurement of gas commensurate with the Company's requirements. The Company needs to prepare a comprehensive plan for effective marketing and apply an optimal product mix, so as to improve its operational performance**;

- **The Company should ensure strict compliance to environmental laws and also evolve an adequate MIS for evaluating the performance of production units for timely corrective action.**