

## CHAPTER II: MINISTRY OF CHEMICALS AND FERTILIZERS

### Brahmaputra Cracker and Polymer Limited

#### *2.1 Assam Gas Cracker project*

##### *2.1.1 Introduction*

The Government of India (GoI) approved (April 2006) the Assam Gas Cracker Project (AGCP) at an estimated project cost of ₹ 5461 crore and Brahmaputra Cracker and Polymer Limited (BCPL, company) was formed (January 2007) for implementing the project with GAIL, Numaligarh Refinery Limited (NRL), Oil India Limited (OIL) and Government of Assam (GoA) as promoters<sup>1</sup>. Due to non-availability of feedstock<sup>2</sup> in required quality and quantity, the production capacity of the project as approved by GoI was 2.2 lakh TPA of ethylene, though found to be sub-optimal by representatives of some Ministries<sup>3</sup> under GoI. During November 2011, the project cost was revised and approved by CCEA to ₹ 8920 crore (including capital subsidy of ₹ 4690 crore). An amount of ₹ 6032 crore has already been incurred for the project upto January, 2013 with physical completion of 88 *per cent*. Capital subsidy amounting to ₹ 3702 crore was received by the company for this project from the Central Government upto January, 2013.

##### *2.1.2 Audit findings:*

##### *2.1.3 Pre-project activities*

The pre-project activities of the project were not carried out efficiently and effectively which contributed to increase in the cost of the project which are discussed below:

##### *2.1.3.1 Site Location*

The project was originally proposed to be located at Tenhaghat village close to Duliajan (source of feed gas from OIL). The Indian Air Force, however, did not give clearance for setting up the project at Tenhaghat as the same was close to Chabwa Air Force Station. Therefore, the site was changed (October 2000) to the present location at Lepetkata. As the selected site was located 50 km away from Duliajan and 45 km. from Lakwa, the project required an investment of ₹ 114.65 crore for transportation of gas through pipelines. It was also observed that the selected site was on an undulating terrain with a long stretch of low-lying area along the river bank which was also highly flood prone. It was observed that the site selection was made without any initial topographical survey. The work for topographical survey and geotechnical soil investigation were awarded during November and December 2007 respectively. An amount of ₹ 291.18 crore was estimated for development of such land and ₹ 130.37crore had been incurred till January 2013.

<sup>1</sup> Shareholding pattern- GAIL-70 per cent and OIL, NRL & GoA-10 per cent each

<sup>2</sup> Natural gas and naphtha

<sup>3</sup> MoCF, MoPNG etc

Management replied (February 2013) that alternative land closer to the source of feedstock was not indentified primarily for saving time of two to three years required for land acquisition.

Management's contention for not identifying alternative land closer to the source of feedstock is not acceptable as there was delay of more than six years in acquisition of the entire land selected at Lepetkata.

### ***2.1.3.2 Installation of additional gas processing facilities at Lakwa***

As per the agreement with OIL (September 2007), BCPL would receive 60 lakh SCMD<sup>1</sup> natural gas which would be processed in Gas Sweetening Unit (GSU)<sup>2</sup> and Gas Processing Unit (GPU)<sup>3</sup> to recover feed gas. The cost of both the plants was ₹ 449.19 crore (GPU - ₹ 418.08 crore and GSU - ₹31.11 crore). There was also a provision in the Detailed Feasibility Report (DFR) for installation of another GSU and modification of the existing LPG plant of GAIL at Lakwa to a GPU at an estimated cost of ₹ 250 crore for processing of 13.50 lakh SCMD gas from ONGC, Lakwa for recovery of feed gas. Hence, there was provision for two GSUs and two GPUs in two different locations. Audit observed that the LPG plant of GAIL at Lakwa, commissioned in October 1998 with a capacity of 0.85 lakh TPA of LPG, was operated at a low capacity due to non-availability of adequate quantity and quality of gas and was incurring huge losses. Therefore, the conversion of the existing LPG plant of GAIL at Lakwa to a GPU and installation of new GSU could have been avoided.

Management stated (February 2013) that it was decided (March 1997) by the Cabinet to transfer the Lakwa plant of GAIL to the project.

It was further observed that though GoI had decided to transfer the LPG plant to the project at a price to be determined by an independent agency, no independent agency was appointed to settle the price.

The transfer of such loss making plant to the project would impact the economic viability of the project.

### ***2.1.3.3 Deficiency in preparation of DFR***

Engineers India Ltd. (EIL) prepared (December 2004) the Detailed Feasibility Report (DFR) on the basis of the scope of work and information provided by GAIL (major promoter) with an estimated project cost of ₹ 3996 crore and scheduled completion period of 60 months. The project cost was subsequently revised (August 2005) by EIL and approved by CCEA at ₹ 5461 crore. EIL prepared the DFR in accordance with the information provided by GAIL. It was noticed that though Front End Engineering Design (FEED)<sup>4</sup> should have been prepared first to arrive at an accurate cost estimate, no such FEED preparation was envisaged by GAIL. The DFR was prepared without pre-selection of required technology and licensor for the project. The cost of the project was also

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<sup>1</sup> *Standard Cubic Metre per Day*

<sup>2</sup> *Gas Sweetening Unit reduces the carbon dioxide from the feed gas before sending the same to downstream Gas Processing Unit.*

<sup>3</sup> *Ethane/ Propane (C<sub>2</sub>/C<sub>3</sub>) is recovered in the Gas Processing Unit (GPU) and thereafter fed in the gas cracker plant.*

<sup>4</sup> *Robust planning and design early in a project's lifecycle at a time when the ability to influence changes in design is relatively high and the cost to make those changes is relatively low.*

estimated on the basis of in-house data with EIL available without considering the non-standard capacity/size of the plant. Therefore, the DFR again had to be revised in December 2011 by EIL with an upward revision of project cost to ₹ 8920 crore. About 41 per cent of the increase in project cost (₹ 1412 crore) was due to changes in scope of work and engineering design etc. which were not envisaged in the original DFR. The standing committee constituted<sup>1</sup> to look into the cost and time overrun in respect of AGCP also observed (May 2011) that the DFR did not factor in the necessary technological/ engineering and utilities/ power requirement.

While accepting the above (February 2013) the management reply was however, silent on not providing the necessary information for detailed engineering by GAIL to EIL at the time of preparation of DFR.

#### **2.1.4 Project Execution**

The project was originally scheduled to be completed by April 2012. The project commissioning date has been revised to December 2013. The delay was mainly attributed to the following:

##### **2.1.4.1 Appointment of EPMC**

Appointment of Engineering, Procurement and Monitoring Consultant (EPMC) is the first step in executing a project. As per the DFR finalised (December 2004) by EIL, the appointment of EPMC should have been made 12 months prior to the project zero date. The CCEA approval for the project was obtained in April 2006. The zero date of the project was considered as April 2007<sup>2</sup>. It was, however, observed that the company initiated steps for award of contract for EPMC only in February 2007 and EIL was appointed as EPMC on nomination basis in September 2007 i.e. after a delay of 17 months from the date envisaged in the DFR/approval of the project, which further attributed to the overall delay in identification of licensor project execution.

It was further observed that fees of EIL as EPMC was fixed in September 2007 at an initial amount of ₹ 257 crore on actual cost reimbursable basis with a ceiling in utilisation of man hours instead of on a lump-sum basis which was against the standard industry practice of fixation of EPMC fees on lumpsum basis. Thus, the fees of EPMC increased with the delay in execution of the project to ₹ 464 crore.

##### **2.1.4.2 Finalization of licensor**

As per the revised DFR, all pre-project activities including selection of licensor for availability of basic engineering process package was to be completed before the zero date (April 2007) of the project. However, it was observed that after three months of appointment (September 2007) of the EPMC, the tender for selection of Ethylene Cracker Unit licensor (ECU) was floated (December 2007) and the price bids were opened after eight months of floating the tender. After opening the price bid, another month was taken to evaluate the bids and to place the same before the Board of Directors. Due to the high price bids, the Board decided (October 2008) on retendering. The same was re-floated (October 2008), bids were opened (December 2008) and the

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<sup>1</sup> *Under the chairmanship of JS(PC) Deptt. of Chemicals & Petrochemicals with the representatives of Planning commission, Deptt. of Expenditure and Ministry of Statistics & programme Implementation*

<sup>2</sup> *Laying of foundation stone*

work was awarded to M/s. Lummus Technology, USA in January 2009. The detailed agreement comprising terms and conditions was finalised in May 2009 and the process package for Ethylene Cracker Unit (ECU) was received in November 2009 from the licensor which resulted in delay of project activities by more than two years from the zero date.

Management stated (February 2013) that the delay in finalization of licensor was due to sub-optimal capacity of the plant on account of feedstock constraints.

### **2.1.5 Feasibility of Assam Gas Cracker Project**

GoI recommended (June 1990) for setting up a petrochemical complex with a capacity of 3 lakh TPA of ethylene with natural gas available in Assam through OIL and ONGC. A new company 'Reliance Assam Petrochemicals Ltd<sup>1</sup> (RAPL)' was incorporated (October 1994) for implementation of the project. However, as the issues relating to availability of adequate gas and its price were not resolved between RAPL and GoI, the project remained a non-starter. Due to declining quality of gas, the extraction of ethylene was also declining and the available gas was sufficient to produce 1.58 lakh TPA of ethylene. Since, RAPL was reluctant for the project below 2 lakh TPA due to its sub-optimal size, GoI decided (February 2003) that GAIL would examine the feasibility of taking up the project on its own. After examining the feasibility, GAIL intimated (July 2004) that it would implement AGCP based on the available gas in Assam and for achieving economy of scale, it proposed to set up an additional naphtha cracker plant by sourcing 1.60 lakh TPA of naphtha from NRL to produce 2.2 lakh TPA of ethylene.

PIB recommended (September 2005) the proposed project to the CCEA for consideration of approval which was approved (April 2006) with a capital outlay of ₹ 5461 crore including capital subsidy of ₹ 2138 crore. Subsequently, Brahmaputra Cracker and Polymer Limited (company) was formed (January 2007) for implementing the project with GAIL as major promoter. As already mentioned project cost was subsequently revised and approved (November 2011) by CCEA to ₹ 8920 crore.

Audit observed the following:

- The required feed gas was not available due to which the size of the plant was sub-optimal (2.2 lakh TPA of ethylene) which was lower than the minimum economic capacity (3 lakh TPA) for petrochemical industry as considered by GoI in the year 1989.
- Maximum capacity of AGCP would be limited to 1.93 lakh<sup>2</sup> TPA of ethylene only which even was below than the projected capacity (2.2 lakh TPA).
- The price of the feed stock has been considered much lower than the market price.

The matter was reported to the Ministry in March 2013; their reply was awaited (March 2013).

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<sup>1</sup> *Shareholding pattern of 11 per cent by AIDC, 40 per cent by Reliance Industries Ltd (RIL) and remaining 49 per cent by public.*

<sup>2</sup> *OIL - 1.30 lakh TPA and ONGC - 0.15 lakh TPA and naphtha would generate 0.48 lakh TPA of ethylene.*