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COMMITTEE ON PUBLIC UNDERTAKINGS

OIL AND NATURAL GAS CORPORATION LTD. - AVOIDABLE EXPENDITURE DUE TO CREATION OF EXCESSIVE HANDLING CAPACITY

MINISTRY OF PETROLEUM & NATURAL GAS

2002 - 2003

EIGHTH REPORT

THIRTEENTH LOK SABHA

LOK SABHA SECRETARIAT
NEW DELHI

Presented to Lok Sabha on 28-4-2003
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LOK SABHA SECRETARIAT
NEW DELHI

April , 2003/Vaisakha,1925(S)

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(2002 – 2003)

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* Elected w.e.f. 13.12.2002 vice Shri Vikram Verma ceased to be Member of the Committee consequent upon his appointment as a Minister w.e.f. 26.8.2002.

INTRODUCTION

I, the Chairman, Committee on Public Undertakings having been authorised by the Committee to present the Report on their behalf, present this Eighth Report on Oil and Natural Gas Corporation Limited – Avoidable expenditure due to creation of excessive handling capacity.

2. The Committee's examination of the subject was based on Audit Paragraph 16.7.1 contained in the Report on Union Government (Commercial) of the Comptroller & Auditor General (No. 3 of 2002) of India.

3. The Committee took evidence of the representatives of Oil and Natural Gas Corporation Limited and Ministry of Petroleum & Natural Gas on 11th October, 2002.

4. The Committee considered and adopted the Report at their sitting held on 31st March, 2003.

5. The Committee wish to express their thanks to the Oil and Natural Gas Corporation Limited and Ministry of Petroleum & Natural Gas for placing before them the material and information they wanted in connection with examination of the subject. They also wish to thank in particular the representatives of the Oil and Natural Gas Corporation Limited and Ministry of Petroleum & Natural Gas who appeared for evidence and assisted the Committee by placing their considered views before the Committee.

6. The Committee also place on record their appreciation for the assistance rendered by the Comptroller & Auditor General of India.

7. They would also like to place on record their sense of deep appreciation for the invaluable assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

New Delhi; **PROF. VIJAY KUMAR MALHOTRA**

April 7, 2003 **CHAIRMAN**

Chaitra 17, 1925(S) **COMMITTEE ON PUBLIC UNDERTAKINGS**

PART – A

REPORT

A. BACKGROUND OF THE PROJECT

I. INTRODUCTION

1. The Oil and Natural Gas Corporation Ltd. (ONGC) was incorporated under the Companies Act, 1956 in June, 1993 pursuant to the decision of the Government to convert the erstwhile Oil and Natural Gas Commission, which was established in 1959 with the mission to stimulate, continue and accelerate exploratory efforts to develop and maximise contribution of hydrocarbons in the country's economy into a public limited company. With the passing of the `Oil and Natural Gas Commission (Transfer of Undertaking and Repeal) Act, 1993', the business of the Commission was transferred to Oil and Natural Gas Corporation Ltd. (ONGC) with effect from February 1, 1994.

II. MAJOR OIL FIELDS OF ONGC IN ASSAM

2. Particulars of the major oil fields presently being operated by ONGC in Assam are as under :-

S.No.	NAME OF THE FIELD	YEAR OF DISCOVERY	YEAR OF PRODUCTION
1.	Rudrasagar	1960	1966
2.	Lakwa	1964	1968
3.	Geleki	1968	1974
4.	Charali	1974	1979
5.	Demulgaon	1976	1985

III. DEMULGAON OIL FIELD

3. Crude production from Demulgaon, which was discovered in 1976 and is the latest of the major oil fields developed by ONGC in Assam was, at first, commenced with in 1985 by utilising a `Well Head Installation'.

4. Following the release / identification of seven oil bearing locations in Demulgaon in May, 1987, ONGC felt the need to construct a Group Gathering Station (GGS), which is a production installation for gathering and treating the well fluid from the wells for processing the oil and gas for end use, storage and for dispatch to crude oil refineries.

5. A GGS has the following typical facilities / functions :-

- Gathering the well fluid
- Treating the well fluid for separation of oil, gas and water
- Storing the crude oil (includes Central Tank Farm)
- Dispatch facilities for crude oil for sending to custody transfer points/refineries
- Gas processing station
- Facilities for utilities like Raw Water tanks and pumps, Cooling Water tower, instrument air compressors, electric power sub-station, chemical dosing systems etc.
- Other facilities like piping for well fluid, crude oil, gas, water, chemicals, instrument systems including instrument loops and wiring, electric wiring
- Fire Fighting Facilities
- Control Room

6. As per the plan initially formulated in January, 1988, ONGC decided to construct the GGS at Demulgaon by ensuring maximum utilisation of the material available with the Company. Subsequently, however, the Company engaged Engineers India Ltd. (EIL) as consultant for constructing a full-scale GGS at Demulgaon. While the initial plan of the Company was to complete the construction of the GGS at Demulgaon by December, 1992 with a modest investment of Rs.2.54 crore, the project was completed only in December, 1999 and finally commissioned in June, 2001 at a cost of Rs.18.05 crore. The GGS built and commissioned by ONGC at Demulgaon has a handling capacity of 1314 Tonnes Per Day (TPD) of crude whereas, the production at Demulgaon field has, since 1988 remained below 300 TPD on an average.

B. SALIENT FEATURES OF OBSERVATIONS MADE BY AUDIT

7. In assessing issues relating to construction of the GGS at Demulgaon, the Audit Report of the Comptroller & Auditor General of India – Union Government (Commercial) – No.3 of 2002 primarily highlights the aspect of creation of excess handling capacity of the Station owing to incorrect assessment of the production profile. A copy of the Audit Para, as contained in the Report is given at Appendix-I.

8. The main features of the Observations made by Audit can be delineated as under :-

i) In January, 1988, ONGC approved the construction of a GGS at a cost of Rs.2.54 crores at Demulgaon in Eastern Regional Business Centre.

ii) The cost of GGS was revised to Rs.16.46 crore in July, 1989 and again to Rs.19.60 crore in April, 1994.

iii) As against the original estimated cost of Rs.2.54 crore, construction of the GGS was completed at a cost of Rs.18.05 crore. Thus, the cost over run in executing the project was Rs.15.51 crore.

iv) As compared to the completion schedule of December, 1992, construction of the GGS was completed in December 1999 and finally commissioned in June 2001. Thus, the time over run involved in executing the project was to the extent of 8 years.

v) The capacity of the GGS, which, initially, in January, 1988, was planned to handle 1000 TPD of oil was increased to 1314 TPD in December, 1990.

vi) From 1988 to March, 1995, production at Demulgaon field remained below 300 TPD, which was far below the projections made.

vii) In June, 1993, Eastern Regional Business Centre of ONGC expressed doubts on utilisation of GGS in view of receding production potential of the field.

viii) Downward projections were further substantiated in February, 1994 consequent to reassessment of production profile of the field despite which ONGC went ahead with the construction of the GGS on the ground that Rs.4.33 crore had already been spent on the project and it was difficult to turn back.

ix) The actual production registered during the years 1993-94 to 2000-2001 remained below the projections anticipated in 1990 as well as 1994, which indicated that the anticipated production was unrealistic and resulted in creation of facilities far in excess of the Company's actual requirement by investing Rs.18.05 crore.

C. GROUP GATHERING STATION AT DEMULGAON

i) Cost and Technical factors

9. As regards issues relating to cost over-run from Rs.2.54 crore to Rs.18.05 crore incurred in implementing the GGS Project, ONGC, in their reply of April, 2002 to Audit inter-alia submitted :-

"It is a fact that originally the cost of GGS was envisaged at Rs.2.54 crore. The original plan of constructing the GGS at a cost of Rs.2.54 crore was based on maximum utilisation of available material. However, this could not materialise due to non availability of land. Consequently, it was decided to create temporary facilities at Well Head Installation and GGS-IV Lakwa to meet the requirement.

Subsequently, EIL was nominated as consultant to construct entirely new GGS with energy efficiency system, having modern plant and process, with latest technology. Accordingly, an estimate of Rs.16.46 crore was given by EIL, which was re-examined and approved by competent authority for an amount of Rs.13.82 crore on 4.6.1991. The estimated cost of Rs.13.82 crore was based on conceptual drawings, Subsequently, on receipt of detailed engineering drawings in phases, the quantity and scope of work changed. Accordingly, an additional sanction was sought making the total sanctioned amount to Rs.19.60 crore in April, 1994. Therefore, it may not be appropriate to term the difference of Rs.15.51 crore between the cost originally envisaged and the cost ultimately incurred as the cost overrun, rather the difference was on account of major changes in the scope of work.

10. On cost related aspects of the Project, ONGC, in a written communication informed :-

"…….there is a conceptual difference between the initial cost estimates of January, 1988 at Rs.2.54 crore and of July 1989 at Rs.16.54 crore. The initial estimate of Rs.2.54 crore was for an early production system, which was subsequently deemed to be not feasible due to operational constraints and as such the entire conceptional study was redone by M/s EIL, based on which a full-fledged GGS was considered necessary and the cost estimates were worked out in July, 1989 at Rs.16.46 crore. The scheme was approved by ONGC Management in June, 1991 at Rs.13.82 crore. The base reference for cost escalation in the instant case should have been Rs.13.82 crore, and not Rs.2.54 crore. The cost estimate of July, 1989 got revised to Rs.19.60 crore in April, 1994 during mid course review, whereby the processing capacity of GGS was also upgraded from 1000 TPD to Rs.1314 TPD. The actual cost of completion was ultimately Rs.18.06 crore, as against the revised cost estimates of Rs.19.60 crore.

11. The CMD, ONGC, while elaborating on this aspect, that is, costs involved in implementing the project, inter-alia informed during evidence :-

"You will be kind enough to appreciate our point that since they are two different projects, one for Rs.2.5 crore for Early Processing System (EPS) which was not taken up and another for creation of GGS, which is the one which we are discussing today – completion of those projects was within the cost."

12. The Committee, having noted that the initial plan, as conceived in January, 1998, was to construct the GGS at a `rough technically estimated' cost of Rs.2.54 crore, which could not be taken up owing to `non-availability of land', called for a further elaboration on these aspects. The Committee, in particular, desired to know the basis for estimating the cost of implementing the project as initially conceived at Rs.2.54 crore and whether non-availability of land was the only reason for abandoning this proposal one and half year's later in July, 1989. In this regard, ONGC replied :-

> "The cost of Rs.2.54 crore was worked out as rough technical estimates (preliminary estimates) which were based for a GGS having minimal facilities similar to EPS and maximum utilisation of the materials envisaged to be available for use in the Eastern Region. However, due to non-availability of land for GGS and envisaged operational constraints in future, construction was not taken up. Stop-gap arrangements were made for oil production from the wells in the area through Well Head Installation (WHI) – Demulgaon and GGS-4, Lakwa. Subsequently for implementation of energy efficient system, a full-fledged GGS was planned."

13. On the planning made for production facilities as per the project plan initially conceived in 1988, it was informed :-

> "The production facilities was planned at that time to be designed on a modular basis so that additional production modules can be added on along with pressure maintenance facilities for injection of about 2000 m3/day of water in the first phase when oil production will be around 1000 TPD."

14. In view of the huge difference in the cost estimates of Rs.2.54 crore in respect of the initially conceptualised GGS (Early Production System) of 1988 and Rs.19.60 crore in respect of the re-conceptualised GGS project formulated by EIL (which was finally completed at a cost of Rs.18.06 crore), the Committee wanted to know the main essentials of difference between the project as initially formulated and subsequently modified. On this issue, ONGC furnished a comparative listing of facilities of the initially conceptualised GGS and the GGS as constructed and presently operational at Demulgaon as depicted in the following table :-

FACILITIES	GGS (EPS) EST COST Rs.2.54 CRORE	CURRENT GGS TOTAL COST Rs.18.06 CRORE
Engineering	-	

Land Acquisition	Minimal	Larger
MP Separator	2	2
LP Separator	2	2
Heater Treater	-	2
Oil Tank capacity	580 m3	4950 m3
Effluent tank	-	1 (850 m3)
Test separator	-	1
Header	1 (Smaller)	1 (for 30 wells)
Pump capacity for oil / effluent dispatch	60 m3 / hour	210 m3 / hour
Piping and Pipe racks	Minimal	Full fledged for well fluids, oil, water, gas etc.
Instrumentation and Control Room	-	
Utilities – Water systems	-	
Electrical Sub-station	-	
Chemical dosing system	-	
Fire Fighting Facilities	-	

15. When the Committee desired to know whether it was a prudent measure to take the decision to construct a full fledged GGS of over 1000 TPD of oil, particularly in view of the imponderables relating to production potential and the inconducive working conditions prevailing in the area, the CMD, ONGC inter-alia stated during evidence :

> "……it happened ten years ago, namely, in 1991. Looking at the records, I am convinced that the judgement which was taken in 1991-92 was a good one. At that point of time, it was good. We have hind-sight now and today, we know what had happened actually. But in 1991, it was for the future that we were working. There was an estimate that there will be so much of production and the intention was that as the production comes up, the GGS would be ready to process the production so that there is no loss of time. My specific submission to the Committee would be that the decision for investment in 1991-92, as personally reviewed from the records, was a good judgement."

16. According to Audit, the cost estimates of GGS Demulgaon were at least 30% higher than the revised cost estimates of GGS cum STP of North Santhal, a project of ONGC going on at the same time. When asked to explain this aspect, ONGC informed :-

> "The cost estimates (as worked out by EIL) for North Santhal plant was estimated at Rs.12.81 crore as of 1988. In Demulgaon GGS, the initial cost estimate of EIL was Rs.16.46 crore which was approved for Rs.13.82 crore by ONGC in June, 1991. However, during the course of execution, the cost was upwardly revised to Rs.19.6 crore in April, 1994 due to change in methodology from turnkey to conventional basis, changes in quantity and scope of work based on detail engineering drawings submitted subsequently by EIL, foreign exchange fluctuations, adverse environmental problems etc."

17. The Audit has also pointed out that when the proposal for constructing the GGS at Demulgaon was being considered in 1991 at a cost estimate of Rs.13.82 crore, on the basis of the plan formulated by EIL, ONGC had decided that items with long lead time need to be ordered and that by 1993, almost all the items were either delivered or expected to be delivered shortly. What the Audit felt to be of particular interest in this regard was the huge difference between the cost estimates and actual costs for many of the items. When the Committee desired to know whether it was a prudent measure to place orders for a major portion of the items in 1991 itself for the project which was finally completed in 1999, ONGC, in a written reply inter-alia informed that `the procurement actions were taken keeping in view the project completion schedule of December, 1993 as per the proposal approved in June, 1991'.

18. According to Audit, had ONGC stopped the construction work on the 1314 TPD capacity GGS project when it became apparent by 1993-94, that the actual production, at less than 300 TPD was far below the expectations, the Company would have incurred an expenditure of Rs.4.33 crore only as against Rs.18.05 crore, eventually spent on the project. On this aspect, ONGC, in their reply to Audit had inter-alia stated that the `expenditure incurred at that point of time was to the tune of Rs.8.02 crore in addition to an amount of Rs. 5 to 6 crore already committed'. Hence, the Company felt that it `would not have been appropriate to turn back' especially when `Demulgaon GGS could be optimally utilised with GGS IV & V fluid, even if Demulgaon field projection did not come correct'.

19. On the technical / design aspects of the GGS, owing to which it became difficult to turn back from implementing the project when its utility became questionable, the CMD, ONGC stated during evidence :-

"I may submit in this connection that this is a comprehensive project where the fluid that comes from the ground goes through several stages so that we can deliver neat, clean, dry crude to the refinery. It is not a situation where there are 3 – 4 different lines of process, and that one or two can be closed down or abandoned depending on the workload."

20. The CMD also added :-

"I would have agreed with Audit that if we had planned for different trains for processing the thousand tonnes, once we came to know the actual processing would be for example 500 tonnes, we could have cancelled some trains altogether. That is a good point. But in this case, this was only one single train for which the equipment was designed, ordered and already delivered for a given capacity. It was not a feasible proposition to abandon any component of the project without affecting the entire project."

21. In this regard, ONGC also informed in their post-evidence reply that `the project was designed by EIL for a single train for which equipment was designed, ordered and delivered for a given capacity'. Given the sequences involved in processing the crude in the GGS, the technological reality was that it was not a feasible preposition to abandon any component of the GGS without affecting the entire project.

22. As for the reasons for not considering shifting the project related equipment procured elsewhere to enable its productive usage, ONGC, in their post-evidence reply further stated :-

"…….capital equipment of the project was ordered at the initial stage in 1991-92 by EIL in view of long lead time as part of prudent project scheduling. Further more, apart from monetary loss due to contractual obligations, such premature abandonment could have led to non-production of oil or production with serious risk of safety and operational control. Shifting of such equipment elsewhere in other operating centers was also not a feasible proposition due to cost consideration, expectation of production improvement in future in and around the field and also for usage of the GGS for discovered / would-be-discovered satellite and marginal fields close to Demulgaon."

23. As informed by ONGC, one of the factors that contributed to increase in the cost estimates of executing the project from the approved amount of Rs.13.82 crore of June, 1991, was the change in the methodology followed in executing the project from Lumpsum Turnkey

(LSTK) basis to splitting the work involved into as many as 80 small contracts. Although, at first, in March, 1991, the case for executing the project was proposed for implementation on LSTK basis, the Company subsequently decided to break the contract `into small independent packages due to doubt about single contractor being able to do the turnkey job in Eastern Region in view of disturbed environmental conditions prevailing at that time'. Consequently, there was no tender issued for executing the project on LSTK basis.

24. Commenting on the method followed by ONGC in implementing the project, the Secretary, Ministry of Petroleum & Natural Gas stated during evidence :-

> "The first was that they originally planned to do it on a turn-key basis. But they found that in view of the prevailing conditions in Assam then, they could not do this. Therefore, they had to divide the contracts into 80 small bits. This was rather an unusual one but they had to take this decision in view of the prevailing conditions in Assam."

25. The Committee, having noted that ONGC faces difficult working conditions in the North East and in Assam in particular, desired to know whether these aspects were factored into project schedule and costs. ONGC, in their post evidence submission made in this regard stated that while it was a fact that all PSUs including ONGC face harsh working conditions in the North East which result in time and cost overrun in projects, it was not feasible to factor such conditions in project schedule and cost. Efforts were always made to ensure that `projects were implemented in time and within costs but the adverse conditions have to be faced on a day to day basis'.

26. The Committee also desired to know whether any provisions were included in the supply agreements with contractors to enable cancellation of orders already placed at any stage during the execution of the project, in respect of which, ONGC, in their post-evidence reply inter-alia stated that, `in the instant case procurement orders were placed by EIL which included standard termination, suspension and force maejure clauses'. It was also added that incorporation of clauses for abrupt closure / cancellation would `not be a sound business practice, as it would lead to avoidance of contractors to participate in ONGC's development programme'.

27. When enquired whether any cost-benefit or viability analysis was carried out on the need to continue with the construction of the project despite the much lower than projected production at Demulgaon field. ONGC, in a presentation, informed that the assessment made in this regard indicated that the Internal rate of return (IRR) on implementing the project would

be 22.7% on the basis of crude oil price at Rs.1735/- per m.t. under the Administered Pricing Mechanism (APM). The position of economical returns from the GGS project was reiterated by the CMD, ONGC in the course of evidence.

28. Pursuant to the evidence of the representatives of Ministry of Petroleum & Natural Gas, a Study Team consisting of Adviser (Energy) of the Ministry and Director (Technical) of Engineers India Ltd., was set up by the Ministry to carry out an independent study regarding the Audit Observations on the construction of Group Gathering Station at Demulgaon field. The terms of reference of the Study Team set up were :-

(i) To factually comment on the observations of the Audit regarding continuation of the construction work despite receding production potential of the Demulgaon project.

(ii) To suggest remedial steps, if any, to be taken in the matter to ensure that such happenings do not recur.

(iii) To give recommendations on any other connected matter.

29. The Study Team undertook a site visit to Demulgaon and Lakwa fields and Nazira in Assam, and, in their report presented to the Ministry, have, apart from factually commenting on the Audit observations' also made `suggestions and recommendations' relating to On-Shore Group Gathering Stations such as the facility built by ONGC at Demulgaon.

30. As informed to the Committee by the Ministry of Petroleum & Natural Gas, the Report of the Study Team has been accepted and ONGC advised to take remedial measures as per the `recommendations / suggestions' made in the report. A copy of the suggestions / recommendations made by the Study Team constituted by the Ministry is given at Appendix-II.

31. On cost related aspects of Demulgaon GGS Project perse, the study team, in their `factual comments' contained in the report inter-alia observed that EIL, who were engaged as consultant in 1988 for conceptualising a full-fledged GGS had given an `estimate of Rs.16.46 crore in July, 1989 for a 1314 TPD oil (1500 M^3/d) capacity GGS', which was examined and approved by ONGC's Competent Authority for an amount of Rs.13.82 crore in June, 1991. However, `even prior to approving the cost estimates of Rs.13.82 crore, the ONGC management had desired that the orders for long lead items, through EIL and land acquisition be processed to save time'.

32. The Study Team also observed that despite the advance action initiated (in 1991) for procuring long lead items, the project schedules were adversely affected by local environmental conditions owing to which it became necessary to seek additional funds for

completing the project. It was also during this period (1993) that doubts emerged on the capacity utilisation of the GGS being built, which led the Management to re-evaluate the project `keeping in view the enhancement in capital expenditure and the past actual production level as well as future production forecast from the field'. Consequently, the IRR and pay back period were re-worked, and as against the proposed enhancement of Rs.8.02 crore (over the earlier approved amount of Rs.13.82 crore) the management finally sanctioned an additional amount of Rs.5.78 crore'.

33. Commenting on the reasons for continuing with the construction work on the project despite the production being much lower than projected, the Study Team also observed :-

> `The construction works were continued by ONGC not only because an amount of Rs.4.33 crore was spent uptil around this time i.e., June, 1993 but also due to overall total commitment of about Rs.11.18 crore to various contractors / vendors.'

34. On issues pertaining to production handling facilities / conceptual design work of Demulgaon GGS / GGS projects in general, the Study Team had the following recommendations / suggestions in their report :-

- Although review of performance behaviour and future production performance of the field, in the instant case, were taken-up at regular intervals there was not enough flexibility in the conceptual design work. This should be appropriately catered for.
- Creation of temporary surface production handling facilities for the initial period of a field, specially one of the marginal nature is judicious option and may be followed.
- A modular approach, with provision for mid-course corrections, if needed, especially when the level of confidence of future production profile is not very high, should be considered.
- ……..usage of modular skid mounted facilities that are easily transportable, with capacity ranging from 500 to 1000 m^3 /day depending on transportability, road conditions and other infrastructure etc. should be looked into. Such units have the added advantage that they can be re-located from one location to another depending on requirements.

ii) <u>TIME FACTORS AND PROJECT IMPLEMENTATION MONITORING MECHANISMS</u>

35. As per the initially formulated plan of January, 1988 for implementing the GGS Project, which could not be taken up construction of the GGS at Demulgaon at a cost of Rs.2.54 crore was to be completed by December, 1992. In view of fact that the construction was completed only in December, 1999 and the project finally commissioned in June, 2001, Audit has observed that there was a time overrun of over eight years.

36. As per the re-formulated scheme for implementing the GGS project, as planned by EIL in July, 1989 the scheduled completion time of the project was October / December, 1993.

37. According to the Ministry of Petroleum & Natural Gas, the draft Audit Para on the subject was, at first received on 13 June, 2001, and after five reminders, ONGC furnished their comments on the observations on 7 November, 2001, wherein it was informed that environmental factors were the major reasons for the time overrun in implementing the GGS project at Demulgaon. As the Ministry, in consultation with the Internal Finance Division felt that such operating constraints in implementing the Project should have been known and anticipated, ONGC, vide letter of 23 November, 2001, was once again asked to furnish the reasons for the time overrun as well as cost overrun and creation of excess capacity for the purpose of finalising the reply to be furnished to Audit.

38. ONGC, in their revised reply on the draft Audit Observations, furnished to the Ministry on 15 April, 2002 inter-alia informed that the inconduciveness of the conditions prevailing for implementing the GGS project was well thought of and accordingly it was `directed to take up the construction of Demulgaon GGS by breaking up the scope of work in different small independent packages so that the work, to the maximum extent, was completed by using the expertise available in Eastern Region'. Yet, the situation in Assam `deteriorated to such an extent that the day to day activities of ONGC were hampered'. It was further stated by the Company that `since the job was converted from turnkey to small independent packages due to forced situation, the time schedule envisaged for turnkey project could not hold good' and the delay of eight years in implementing the project needs to be seen in this perspective. A chronological statement of the measures taken by the Ministry to settle the observations made by Audit is given at Appendix-III.

39. In essence, the factors attributable to the delay in executing / commissioning the GGS Project, as cited by ONGC in their reply to the Ministry / Audit and the submissions made to the Committee are delineated as under :-

- Environmental

- Militancy at the peak in Assam including kidnapping and killing of an ONGC officer.
- On account of indignant situation prevalent in Assam, the project could not be implemented on single turnkey basis and it had to be divided into a number of small packages. This resulted in delay in the achievement of targets envisaged.
- Due to lack of competition / un-equipped contractual agencies, ONGC was forced to re-tender the jobs in some cases thereby resulting in delay.
- Interrupted power supply was also a hurdle in the job.
- Local people stopped the works frequently.
- Kidnapping of one of the contractors of ONGC in 1995.
- Frequent bandh calls given by various political parties in Assam.
- Bad weather conditions including heavy rains etc.
- The prognosis of Demulgaon Field did not prove to be true.
- The receding trend in production caused concern in ONGC and situation was reviewed.
- It was thought that facilities being created at Demulgaon could also be used to process crude of GGS-IV / V which were very old facing constraints of space.
- ONGC had already spent Rs.8.02 crore and Rs.5 to 6 crore stood committed when the receding production potential of the field became imminent. Hence, it was difficult to turn back.
- With two additional infill development locations being released for drilling, there was a possibility of infill drilling of few wells to augment production from the field thereby increasing the use of GGS.
- Prediction of reservoir performance was fraught with uncertainties and highly probabilistic in nature.
- Based on the success of initial wells drilled, surface facilities were also planned to be created. However, drilled wells did not perform as expected.

40. Touching upon the difficulties faced in implementing projects in the State of Assam, the CMD, ONGC stated during evidence that it was only in the case of mega projects that big concerns such as L&T and EIL could be engaged. For implementing smaller projects worth Rs. 10 to 12 crore, constraints were faced in engaging `out-of-the state' agencies for executing projects.

41. When the Committee desired for a specification of the project Management methodologies adopted by ONGC in monitoring the progress of projects and the level of management at which projects were monitored, the Company, inter-alia informed :-

> "Currently, all the major projects costing more than Rs.100 crore and all IOR / EOR projects irrespective of value are monitored by ONGC Board and its Project appraisal Sub Committee. Exploration, Production and Project monitoring Committee (EPPMC), a committee comprising of functional Directors and key executives monitors all the projects costing above Rs.10 crore. The projects costing less than Rs.10 crore are monitored at Asset level by Asset Managers."

42. When also asked whether ONGC had any Project Committee as a part of the Board of Directors to monitor the progress of projects and whether implementation of the Demulgaon GGS project was monitored by any such Committee, ONGC, inter-alia informed that `following the empowerment of ONGC Board through Navaratna dispensation in 1998 / 1999, a Project Appraisal Sub-Committee of the ONGC Board was formed in August, 1999'. As the Demulgaon GGS project was executed in the 90s, `it was not reviewed by the above Sub-Committee'. However, the project was monitored by `Exploration, Production and Project Monitoring Committee (EPPMC) comprising CMD, functional Directors and key executives'.

43. Questioned about the role played by the Ministry in monitoring implementation of ONGC's projects and in particular, the Demulgaon GGS Project, the Secretary, Ministry of Petroleum & Natural Gas stated during evidence :-

> "The Ministry does not clear projects of this size. The Ministry reviews projects worth Rs.100 crore and above. Since ONGC is a Navratna company, they had their own monitoring system and particularly for projects of this size of around Rs.16 crore to Rs.20 crore, they have the powers."

44. The Committee have also been given to understand that ONGC being a Board managed `Navratna' Company, the mechanisms vested with the Ministry to oversee and monitor the Company's business activities include Quarterly Performance Review (QPR) meetings and through EIL, who were the nodal agency on their behalf for monitoring mega projects. Furthermore, ONGC Board was also represented by Government Directors including two from the Ministry and the Sub-Committee of ONGC on project appraisal was represented by Navaratna Directors and the Ministry's representative.

45. Having noted that despite the construction work being completed in December, 1999, the Demulgaon GGS was finally commissioned only one-and-half years later, that is, in June, 2001, the Committee desired to know the reasons for the delay in commissioning the project. On this issue, ONGC informed `that the project was mechanically completed in December, 1999'. Yet, owing to the poor realiability of the small local contractors and difficulties faced in effective supervision, rectificatory works had to be carried out which delayed trial operations. Also, many wells had to be closed down due to difficulties faced in inspection and maintenance owing to which the Station was put into operation only in June, 2001.

46. As regards the delays experienced in executing the project, the study team constituted by the Ministry inter-alia observed that `work on the project was adversely affected during the execution phase because of subversive activities of the miscreant anti-social elements in the Region'. Also, `ONGC had divided the project into a number of small packages instead of awarding it as a single turn-key project to an established and competent contractor, as was originally envisaged' owing to the conditions prevailing at the time.

47. On the aspect of project implementation monitoring perse, the Study Team made the following suggestion / recommendation in the report :-

> `Although the prevailing situation in the Region during the construction phase of Demulgaon GGS was not conducive, proper monitoring mechanism of work progress, even for `not very high value' contracts should be further strengthened and provision to be kept for mid-course correction, wherever possible/applicable.'

D. PRODUCTION PROFILE OF DEMULGAON OIL FIELD VIS-À-VIS HANDLING CAPACITY OF GROUP GATHERING STATION

48. As pointed out earlier, the main contention of Audit was that construction of the Group Gathering Station, with a capacity of 1314 TPD (raised from 1,000 TPD planned in 1988 to 1314 TPD subsequently) by investing an amount of Rs.18.05 crore was continued with and completed despite the low and receding production profile of the Demulgaon oil field. The related issues are dealt with in elaboration in the succeeding paragraphs.

49. The production projections of Demulgaon field made in 1990 and 1994 vis-à-vis actual production registered, as pointed out by Audit, are depicted in the table below :-

	ANTICIPATED PRODUCTION	ANTICIPATED PRODUCTION AS	ACTUAL PRODUCTION

YEAR	AS PER PROJECTIONS MADE IN 1990	PER PROFILE PROJECTIONS MADE IN 1994	
	(TONNES PER DAY)		
1993-94	867	320	229
1994-95	994	370	248
1995-96	1051	440	302
1996-97	1051	390	228
1997-98	1051	370	234
1998-99	1051	350	221
1999-00	1051	--	214
2000-01	1051	--	201

50. ONGC, in their reply of 15 April, 02 to Audit inter-alia informed as follows on the reasons for going ahead with the construction of the GGS despite the imminent downward or receding potential of Demulgaon field :-

> "Historically, based on the success of initial well drilled in Demulgaon, it was expected that handling of approx. 1800 CM/day liquid would be required but the drilled wells did not perform as expected."

51. It was also pointed out in the reply that the `prognosis made for Demulgaon field did not prove to be true and the receding trend of production caused concern' owing to which the overall situation was reviewed before deciding on the feasibility of going ahead with the construction work on the project.

52. The Committee, in particular, desired to know the basis for projecting a crude production of 1000 TPD in 1988 and the subsequent enhancement to 1314 TPD in December, 1990, and the management level at which these projections were considered and approved. The Committee also wanted to know whether experimental data on the production profile was not relied upon in deciding on the feasibility / future of the GGS project. In reply to these issues, ONGC stated :-

> "In August 1987, the production of crude oil from Demulgaon structure was 130 TPD from 2 wells. Keeping in view the then anticipated production from the field based on geological and reservoir characteristics, a production level of 1000 TPD was forecasted."

53. On the reasons for enhancing the handling capacity of the GGS from 1000 TPD to 1314 TPD in December, 1990, it was informed :-

> "Subsequently, an analysis for the review of the design basis for new full-fledged GGS at Demulgaon, was carried out in December, 1990, which inter-alia also included analysis, investment, development and phasing. In the conclusion, it was recorded that in Phase-I (up to 1995), oil production would reach up to 1135 m^3 / day with liquid production of 1435 m^3 / day and in Phase-II (beyond 1995), the oil production would be 1200+ m^3 / day and liquid production of 1800 m^3 / day (average). The plant capacity for the new GGS was, therefore, recommended to be designed for a liquid handling capacity of 1800 m^3 / day with 800 to 1500 m^3 / day of oil."

54. As per Audit, right from the very beginning, production at Demulgaon field remained below 300 TPD and the Eastern Regional Business Centre (ERBC) of ONGC had, in June, 1993 expressed doubts on the utilisation of the GGS being built in view of the receding production potential. The Committee, in this regard, desired to know details of the findings / doubts expressed by ERBC on the possible non-utilisation of the GGS, the stage at which construction of the Station was at that point of time and the Management level at which this aspect was considered. In reply, ONGC however, categorically stated that the Eastern Region had, `at no point of time expressed doubts that the project would not be utilised to its optimum level in the long run'.

55. Commenting on the stand taken by ONGC by indicating that the Eastern Region of the company had, at no point expressed doubts about the non-utilisation of the GGS project the Audit, however, reiterated that this was not correct because of the following facts :-

- The GGS was originally sanctioned in 1988 with potential of 1000 TPD when the delineation of the Demulgaon field was still in progress. Even by June, 1989 when the GGS was initially expected to be ready it was not able to forecast realistic potential of the field.
- Estimates of 1800 M^3 per day while revising the capacity from 1000 tonnes was also proven wrong by August, 1989 as from the 9 wells drilled in the area only 5 were producing 560 M^3 per day. Still the estimated production of 1800 M^3 was considered achievable.
- At the time of construction the anticipated projections made in 1990 were in the range of 876 to 1051 tonnes per day whereas, projections subsequently made in

1994 anticipated average production of 320 tonnes per day for the same period from the field.

- The region was clearly in know of the fact that the GGS was not going to be utilised fully or to its optimum capacity and because of this reason it was indicated that the crude which was being processed at the already working GGS-IV and V which were in close vicinity was proposed to be diverted to the upcoming GGS Project which could increase the utilisation capacity of the station to around 83 per cent.

56. Apart from the above, the Audit also informed the Committee :-

"Above all, the decision to install the GGS of 1000 TPD was taken by the Eastern Region and sanctioned by Member (NG) in January, 1988. Further, all the estimates and projections leading to the revision of the capacity to 1314 TPD was made on the basis of ERBC's planning of wells which were under drilling or were planned to be drilled in future. The potential of those wells was taken just to increase the capacity of GGS to 1500 M^3 (1314 TPD) to justify the already incurred on the project or commitments made therefor."

57. In conclusion, the Audit informed that `ONGC cannot deny that the Eastern Region had no doubts about the utilisation of the GGS to its optimum level in the long run after keeping in view the dwindling production profile of the field which was already known to the ONGC and particularly when the doubt is recorded in the ERBC files relating to the project'.

58. As per the report of the Study Team constituted by the Ministry to factually comment on the Audit Observations, it was `while processing for approval for investment in excess of the earlier approved amount of Rs.13.82 crore that doubts regarding capacity utilisation of the GGS at Demulgaon were raised by Sr.D.D. (F&A), ERBC in 1993'.

59. ONGC had, in their initial reply of August, 1999 furnished to Audit on the observation on the injudiciousness of the decision to construct the GGS with a handling capacity far in excess of the requirements / crude production level at Demulgaon inter-alia stated that the production of reservoir performance was fraught with uncertainties and was highly probabilistic in nature. It was also stated that many a time expectations of earth science do not come up as predicted as in this case and the infrastructure developed for the source was utilised at a later stage when the requirement became evident.

60. The Audit, however, did not find this reply to be tenable mainly due to the reason that the development of infrastructure should directly co-relate and keep pace with the production

trend. Also, the Audit pointed out that in-spite of the inordinate delay of over eight years in commissioning the GGS, ONGC had not faced any problem in handling of oil production at Demulgaon till June, 2001. On these issues, ONGC, in their reply of April, 2002 inter-alia stated that although the management `re-considered the on-going construction of GGS' in view of the receding production levels, it was decided to continue with the construction work `due to the expenditure already incurred' and also for processing crude from the nearby installation (GGS-IV and V Lakwa), which were very old and facing constraints of space.

61. Highlighting the uncertainties involved in assessing reservoir / oil field performance, the CMD, ONGC inter-alia stated during evidence :-

> "In exploration-production business, when we go to exploration, we make inferences. Since 1980s we have improved our technologies and have competent capabilities. Our knowledge and experience are manifold and we keep pace with the global trends. In spite of all these technologies and experiences, exploration has always been a business fraught with uncertainty, chance, and till we drill, we do not know whether exploration is successful or not. We are producing gas and oil from reservoirs which are under-ground and which are not visible or which cannot be measured; we can measure it only indirectly. The entire process of exploration and development is an inferential process and not deterministic."

62. In this regard, the CMD, ONGC also added :-

> "We have made an investment on the basis of an expected production figure of a thousand tonnes or more per day, and the actual production today is less. Factually, this is accepted."

63. On issues pertaining to assessment of production performance and creation of appropriate handling facilities at oil fields, the study team constituted by the Ministry had the following `findings / recommendations' :-

> - Although the dynamic E&P business is beset with a large number of imponderables and uncertainties, future predictions for field(s) performance based on reliable and prudent data base which is history matched is extremely important. This coupled with the use of state-of-the-art technologies and skilled / experienced multi-disciplinary team efforts would greatly facilitate in making judicious assessment of future production behaviour. This needs to be duly considered.

- Timely creation of surface facilities, though a desirable feature for early realisation of first oil on commercial basis from a discovery, should also take into account the vagaries of predictions which are inherently probabilistic in nature. A balance between the two needs to be made at the conceptual stage itself. In this regard, an updated inventory of spare capacity available in the reasonable vicinity of area under consideration would be highly beneficial.

64. When the Committee desired to know the extent to which, the capacity of the GGS constructed at Demulgaon was presently being utilised, the CMD, ONGC informed that as of now, it was to the extent of 30 – 40 per cent and that the Company was looking at achieving a utilisation capability of 70 per cent.

65. The Committee desired to have a detailed submission on the future outlook of capacity utilisation of the Group Gathering Station built at Demulgaon. In this regard, ONGC, in a post-evidence submission, inter-alia informed :-

"Keeping in view the under utilisation of the GGS for processing crude from Demulgaon field alone, ONGC has worked out a strategy to maximise the capacity utilisation of the Demulgaon GGS in future. The well fluid from two nearby marginal fields viz. Charali and Changmaigaon is being diverted to GGS Demulgaon thus avoiding construction of full-fledged GGSs for these fields. It is also mentioned that most of the other existing GGSs of Assam fields located in nearby area are considerably older (20 years of more) and require de-bottlenecking / modifications / upgradation from time to time. In such cases, the GGS at Demulgaon could serve the purpose with some modification / facilities like pipeline as it is strategically located at the center of major producing fields of Assam. Keeping the above scenario in view, the capacity utilisation of Demulgaon GGS in future for handling liquids will be as under :-

Demulgaon Field	:	350 m^3 / day	(present)
Potential from sick wells	:	100 m^3 / day	(2003-04)
Charali Field	:	320 m^3 / day	(2002-03)
Likely additional development	:	100 m^3 / day	(2004-05)
Changmaigaon Field	:	130 m^3 / day	(2002-03)
		1,000 m^3 / day	

66. For ensuring maximum utilisation of the GGS Plant, the Study Team constituted by the Ministry inter-alia recommended that apart from the above mentioned measures, E&P activities in this prospective belt – the "golden neck" need to be expedited.

B. PART II

CONCLUSIONS/RECOMMENDATIONS OF THE COMMITTEE

INTRODUCTORY OBSERVATION

1. Production from Demulgaon oil field in Assam was initially commenced in 1985, near about a decade after the discovery of the field in 1976 by utilising a `well head installation' as well as production aiding facilities available at the adjoining oil fields. ONGC's plans to create a proper production aiding facility at Demulgaon by way of constructing a Group Gathering Station (GGS) were, initiated in January, 1988 but the related process was mired with many a problem in the ensuing years. While, as per the initially conceived plan of January, 1988, ONGC intended to construct a 1,000 tonne per day (TPD) of oil capacity GGS with an investment of Rs.2.54 crore in about one-and-half years, the GGS facility as finally constructed and commissioned at Demulgaon in June, 2001 has a handling capacity of 1314 TPD of oil and involved a total expenditure of Rs.18.05 crore. More significantly, the actual production registered at the Demulgaon field has, since the very beginning, remained at about 300 TPD of oil on an average.

The scrutiny carried out by Audit on issues relating to construction of the GGS primarily highlights the aspect of creation of the facility with a handling capacity (1314 TPD of oil), which was far in excess of the actual requirements at Demulgaon field where the production registered has remained at about 300 TPD of oil. This apart, as brought out by Audit, implementation of the GGS project involved an escalation in costs to the extent of Rs. 15.51 crore as compared to the original estimated construction cost of Rs. 2.54 crore of January, 1988 as well as a significant time over-run.

The Committee, upon examining the related issues, gather the impression that a combination of factors, prominent of which were the problems involved in prediction of reservoir performance and the difficult working conditions prevailing in the area contributed significantly to the

situation of delayed and expensive exercise of implementing the GGS project with a capacity far in excess of the production profile or requirement at the field. Yet, the Committee cannot also help noting that had ONGC exercised adequate care and caution, particularly in matters of planning and designing the GGS plant and monitoring the implementation aspects, a more appropriate production handling facility could have possibly been created at Demulgaon at an acceptable cost and within a reasonable time frame.

RECOMMENDATION NO. 1

ABANDONMENT OF INITIAL PROPOSAL

2. The Committee feel constrained to note that ONGC could not give any substantive or viable reasons for shelving the initially formulated proposal of January, 1988, whereby the GGS was planned to be constructed at Demulgaon at a modest investment of Rs. 2.54 crore by ensuring utilisation of materials available with the company to the optimum extent. The project, as planned, involved a modular designing of the production facility whereby additional production modules could be added on as per requirement and would have ideally suited the `developing oil field' of Demulgaon. But this was shelved ostensibly owing to non-availability of land. Despite the pointed questioning by the Committee on the details of the GGS project planning as carried out at first and the reasons for shelving the proposal, ONGC could only add that apart from `non-availability of land', certain operating constraints envisaged too resulted in giving up this proposal. Given the submissions made, the Committee are inclined to believe that no serious follow up action or `working' was carried out on the initially conceived proposal of January, 1988 to construct a `modular based' GGS at a minimal cost and time-frame. This also becomes apparent from the fact that ONGC did not face any problems or constraints in acquiring a much larger quantum of land required for constructing the more modern and full-fledged GGS that the company subsequently opted for in the same year, that is 1988, in lieu of the initially conceived project plan. The Committee desire that ONGC in future should exercise due care in the formulation of projects of this nature so that wasteful expenditure is avoided.

RECOMMENDATION NO. 2

HIGHER ORIGINAL COST ESTIMATES

3. The Committee note that as per the re-conceptualised scheme of implementing the GGS project, as worked out by Engineers India Limited (EIL) in July, 1989, a full-fledged energy efficient plant - with additional and modern facilities and utilities which were lacking in the initially conceptualised GGS – was planned for implementation at an estimated cost of Rs.16.46 crore. This proposal was examined and approved by ONGC's Competent Authority for implementation at a cost of Rs. 13.82 crore in June, 1991. While the big difference in the cost estimates of Rs. 2.54 crore in respect of the initially conceptualised GGS project of January, 1988 and Rs. 16.46 crore in respect of the subsequently planned technically advanced project formulated by EIL is understandable, what surprises the Committee is the fact that the Company's management resorted to initiating advance action for procuring machinery and equipment as well as acquisition of land for the project even prior to the formal approval of the proposal by the Competent Authority. The Committee are of the considered view that resorting to such measures, even if intended to save time and adhere to project schedules would have the effect of rendering the established norms and rules relating to clearances of projects and cost estimates relating thereto meaningless. Also, as the events that followed showed, the completion schedule of December, 1993 for implementing the re-formulated project could not be adhered to and an additional amount of Rs. 5.78 crore (over and above the approved amount of Rs.13.82 crore) had to be sanctioned for enabling its completion.

Yet another issue that deserves to be brought to light in this regard is that no satisfactory explanation was forthcoming from ONGC on the observation made by Audit on the difference between the cost estimates and actual costs of many of the project related equipments procured being of a very high order. The Department has to take strong action in this regard and the inadequacies in the law and the procedures in taking action may be taken care of and the details may be intimated to the Committee. This also applies to the observation about the cost estimates of Demulgaon GGS being much higher than the revised cost estimates of a comparable

on-going project of ONGC viz., GGS cum STF of North Santhal. The Committee expect a detailed explanation from ONGC on these aspects of the observations made by Audit.

RECOMMENDATION NO. 3

PRACTICE OF DIVIDING JOBS FOR PROJECT EXECUTION

4. The Committee note that there are certain inherent contradictions or inconsistencies in the reasons attributed by ONGC for the cost escalations and delays in executing the GGS project as formulated by EIL in 1989. While the Company has informed that it was after giving sufficient thought to the conditions prevailing in the area that it was decided to break up the scope of work of the project into `small independent packages' to enable the construction of the plant in an effective manner, this very factor of packaging the work into separate bits has also been shown to have contributed significantly to the subsequently witnessed effect of cost escalations and delays in implementing the project. The Committee feel that ONGC should have been more forthright and clear in giving their explanations in this regard.

The Committee also observe that as per the comprehensive project plan formulated by EIL, implementation of the GGS project was envisaged to be completed by December, 1993 on Lumpsum Turnkey (LSTK) basis. Yet, ONGC chose not to issue a tender for implementing the project on turnkey basis and instead decided to adopt, what has been termed by the Petroleum Secretary as an `unusual route' of breaking up the work involved into 80 small independent packages `due to doubts about a single contractor being able to do the turnkey job in the Eastern Region in view of the disturbed conditions prevailing at that time'. The Committee feel that had ONGC attempted and succeeded in executing the GGS project by adopting the accepted and convenient method of `turnkey basis' followed for such comprehensive projects, the effect of cost escalations, delays and technical snags witnessed in implementing the project could have possibly been minimized or avoided. The Committee, therefore, recommend that ONGC should revise their strategy for project implementation in the light of the experience gained in this specific project.

RECOMMENDATION NO. 4

NEED TO ADOPT PROJECT DESIGNS TO ENABLE MID-COURSE CORRECTION

5. The Committee note that ONGC had undertaken a number of studies on the performance behaviour and production profile of Demulgaon field at different points of time right from 1985. The inputs as well as findings of the studies carried out varied every time and these variations have been attributed to the inherent trait of the business of exploration and production which is wrought with uncertainty. Whereas the good production witnessed from the initially drilled wells and the production assessments made in the period 1987-89 may have possibly prompted ONGC to opt for constructing a 1,000 TPD capacity GGS at first and then raise the capacity to 1314 TPD in respect of the re-conceptualised GGS of 1989, in the years that followed it became very apparent to the Company that the actual production at Demulgaon would be in the range of about 300 TPD of oil on an average, thereby resulting in a huge mismatch between the production profile and handling capacity of GGS plant being built. The Committee, in this regard, observe that it was mainly the inherent inflexibility in the conceptual design of the project which envisaged a `single train' or `module' for handling a capacity of 1314 TPD of oil that hindered ONGC from turning back from implementing the project or making alternative arrangements when its utility became questionable. The fact that the designing of the project did not leave any scope for mid-course corrections in the handling capacity in view of the low or receding production profile at the field was pointed out by the CMD, ONGC in the course of evidence and also brought out in very clear terms by the Expert Team subsequently constituted by the Ministry of Petroleum & Natural Gas to factually comment on the observations made by Audit. Given the fact that ONGC is well aware of the imponderable nature of reservoir assessment or performance, the Committee feel that adequate care should have been taken at the designing stage of the GGS Plant to leave scope for mid-course corrections, which would have prevented the eventually witnessed situation of mismatch between capacity of the plant and actual requirements at the oil field. The Committee, in this regard, also

trust that, in future, ONGC would give the deserved consideration to the recommendation made by the Expert Team on the need to adopt a modular approach of design – with provisions for mid-course corrections, as needed – especially in situations where the level of confidence or certainty of future production profile was not very high, as proven in the case of Demulgaon field.

RECOMMENDATION NO. 5

INFLEXIBLE PROCEDURES

6. Apart from the inflexibility in the conceptual design of the GGS Plant, the Committee note that the amount expended or committed towards project related work as early as in 1992-93 was yet another significant reason for ONGC to continue with the construction work, despite the apparent low production at the field. The Committee observe that by mid June, 1993, apart from spending an amount of Rs.4.33 crore, the commitments made by the Company to various contractors and vendors amounted to Rs.11.18 crore. Considering the fact that a total amount of Rs.15.51 crore, which amounts to near about 86% of the total project cost of Rs.18.05 crore, was either already expended or committed by mid 1993 and major civil, electrical and related works of the project were also reportedly completed by this period, the Committee are left to wonder as to what actually the progress of project execution was from 1993-94 to June, 2001, when the GGS plant finally became operational. The Committee desire that on this aspect ONGC should review their existing practices and procedures.

The Committee are also inclined to note that on account of the reasons discussed in the preceding paragraphs, that is, rigidity of design and project costs expended or committed, by 1993-94, ONGC was faced with a situation where it could not turn back from going ahead with implementing the project despite the big question mark on its utility. And, mainly as a consequential action the company sought to justify the utility of the project by inter-alia proposing usage of the GGS facility for handling `well fluid' from the other oil fields located in the near vicinity.

RECOMMENDATION NO. 6

NEED TO IMPLEMENT RECOMMENDATIONS OF EXPERT TEAM

7. In response to the Committee's specific questioning on whether the Company had considered shifting the GGS plant related equipment procured to some other site or location when the utility of setting up the plant at Demulgaon became questionable, ONGC has categorically informed that such a proposition was not considered to be feasible inter-alia owing to considerations of costs. The Committee, in this regard, observe that the Expert Team constituted by the Ministry have made a pertinent suggestion emphasising on using `modular skid mounted GGS facilities' with capacity varying from 500 to 1000 m3 / day, that were easily transportable and hence have the added advantage of being `re-located from location to another depending on requirements'.

Also, in regard to issues pertaining to Exploration and Production (E&P) business per se, the Committee observe that the Expert Team had, while pointing out that this was a field beset with a large number of imponderables and uncertainties, also stressed on the extreme importance of basing predictions of field performance on reliable and prudent data which was matched with history. This exercise, coupled with usage of state-of-the-art technologies and skilled / experienced multi-disciplinary team efforts have been pointed out to be a `great facilitator in making judicious assessment of future production behaviour'. The Committee feel that if ONGC had given adequate attention to these aspects – usage of modular skid mounted and transportable units and undertaking measures for ensuring a judicious assessment of production profile – the situation of looking for alternate routes for making a prudent usage of the GGS plant capacity built at Demulgaon could perhaps, have been avoided. The Committee, however, trust that the suggestions made by the Expert Team in this regard would be given due consideration by ONGC in implementing their projects in future.

RECOMMENDATION NO. 7

NEED TO FURNISH CORRECT INFORMATION

8. A particularly disturbing aspect noticed has been the tendency adopted by ONGC in not furnishing complete factual details / information sought by the Committee on the basis of certain observations made by

Audit or furnishing the information desired in incomplete or uncertain terms. While the Committee had sought complete details as well as clarifications on the doubts reportedly expressed by the Eastern Regional Business Centre (ERBC) of the Company in 1993 on the utilisation of the 1314 TPD capacity GGS being built in view of the receding production profile – an observation made by Audit – ONGC has been categorical in stating that the Regional Centre had, `at no point of time expressed doubts that the project would not be utilised to its optimum level in the long run'. The Audit, in this regard, has subsequently reiterated that the information furnished by ONGC on the matter was not correct, particularly in view of the fact that the Eastern Regional Centre's doubts on the utility of the project were recorded in their files relating to the project. Also, the Report of the Expert Team constituted by the Ministry later has brought out the factual aspects of the matter in a more forthright manner, according to which, in 1993, when the case for approving an investment in excess of the earlier approved amount of Rs.13.82 crore was being processed the Senior DD (E&A), ERBC had raised `doubts regarding capacity utilisation of the GGS at Demulgaon'. The Committee strongly deplore the stance adopted by ONGC in not furnishing the details of the matter as sought for and demand an explanation in this regard. As desired in an earlier para, the Committee expect to be furnished with full details of the doubts expressed by the Eastern Regional Centre in 1993 on the utility of the GGS plant, the management level at which this aspect was considered and the action taken thereon, particularly in regard to deciding on the prospects of the GGS project.

RECOMMENDATION NO. 8

NEED TO REVIEW THE PROJECT MONITORING SYSTEM IN THE MINISTRY

9. The Committee note that ONGC, being a `Navratna' company, the Ministry of Petroleum & Natural Gas play an active role only in overseeing / monitoring implementation of the Company's mega projects with an investment in excess of Rs.100 crore. In the case of projects with smaller investments, such as the Demulgaon GGS project, the monitoring role of the Ministry is mainly confined to Quarterly Performance Review (QPR) meetings and the role played by the Government Directors, including the Ministry's nominees, on the ONGC Board and the Company's Sub-Committee on project appraisal. In regard to the observations made by Audit on the Demulgaon GGS project perse, the Committee, however, note that it was only after they became seized of the matter that the Ministry got into the pro-active mode of constituting a Study / Expert Team to factually comment on the Audit Observations and to suggest remedial steps to ensure that such happenings, as witnessed in the case of Demulgaon GGS project, do not recur. The Committee feel that had the Ministry undertaken this exercise of constituting a fact finding team beforehand, precious time could have been saved in settling the issues raised by Audit and also contributed positively in ensuring more effective project implementation mechanisms. The Committee also observe that the Study Team has, in its report, not only factually commented on the Audit Observations but also made many recommendations of significance on the methodologies to be followed in project implementation, some of which have been dealt upon at length by the Committee. The Committee note that the Ministry has instructed ONGC to take remedial measures as suggested by the Study Team. The Committee desire that action should be taken by the Company within a definite time frame in this regard and the details should be communicated to the Committee. The Committee recommend that the Ministry of Petroleum and Natural Gas should also review the system of monitoring the projects with a view to further streamlining its methodology.

RECOMMENDATION NO. 9

NEED TO STRENGTHEN MONITORING MECHANISM OF ONGC

10. Although ONGC have informed that the Demulgaon GGS Project was monitored by the Exploration Production and Project Monitoring Committee (EPPMC) of the Company which comprises of the CMD, Functional Directors and other key executives, mainly on account of the fact that the process of implementing the project spanned over a decade, involved significant cost escalations and also resulted in a huge mis-match between the oil field requirements and the handling capacity of the plant, the Committee are inclined to believe that there were serious shortcomings in the project monitoring mechanisms adopted. Also, there was no concrete evidence produced before the Committee to show that the work progress on the project was monitored at regular intervals and corrective measures taken, as needed. Despite the fact that the situation prevailing in the region was not conducive during the construction phase of Demulgaon GGS, the Committee feel that there is a imperative need to strengthen monitoring mechanisms adopted by ONGC, particularly in respect of projects of not `very high' or `significant' value or investment as the Demulgaon GGS Project. This, the Committee feel, is all the more essential particularly on account of the current scenario where ONGC does not enjoy a monopoly in the business of oil and gas exploration and production. The Committee also wish to be apprised of the measures taken by ONGC in this direction.

RECOMMENDATION NO. 10

NEED TO STEP UP PRODUCTION IN NORTH EAST

11. The Committee observe that as of now, production at Demulgaon field is to the extent of 350 m3/day, with the percentage utilisation of the 1314 TPD of oil GGS Plant built at the field being in the range of 30 to 40 per cent. With a view to increasing the utilisation capability of the plant to the level of about 70 per cent, ONGC has reportedly chalked out a strategy which inter-alia involves enhancing the production at Demulgaon by another 200 m3/day of liquid and diverting well fluid of about 450 m3/day from the adjoining marginal fields of Charali and Changmaigaon. The exercise, when completed, is expected to increase the handling capacity of the Demulgaon GGS to 1,000 m3/day of liquid. The Committee also

understand that in addition, ONGC proposes to divert the well fluid presently handled at the ageing GGS facility at the nearby Lakwa field for processing at the newly built energy efficient GGS facility at Demulgaon, which would lead to a further enhancement in the handling capacity of the plant. The Committee trust that in addition to taking expeditious measures to give effect to this strategy for increasing the handling capacity of Demulgaon GGS, ONGC would also take appropriate action for giving a fillip to exploration and production activities in the prospective belt of the North-eastern Region. The Committee would also like to be kept apprised of the progress made on this front.

CONCLUDING OBSERVATION

12. The Committee, in conclusion, reiterate that a series of factors including the inconducive working conditions prevailing in the region during the construction phase of Demulgaon GGS and injudicious assessment of production profile coupled with weaknesses in project design and implementation monitoring mechanisms, contributed to the project cost escalation, delays and creation of the facility which was inappropriate to meet the production requirements at the field. Since the factors involved in this regard may not have been under the total control of ONGC's management, the Committee do not feel inclined to recommend for a deeper probe or examination of the various aspects relating to implementation of the Demulgaon GGS Project. The Committee, however expect ONGC to furnish the clarifications and information desired for on different aspects of the GGS Project dealt with in the preceding paragraphs, within a period of two months from the presentation of this Report to Parliament. The Committee also trust that remedial measures, as suggested, would be taken for ensuring that the happenings, as witnessed in the implementation of Demulgaon GGS Project are not repeated.

New Delhi; **PROF. VIJAY KUMAR MALHOTRA,**

April 7, 2003 **Chairman,**

Chaitra 17,1925(S) Committee on Public Undertakings.

APPENDIX - I

(vide Para 7 of the Report)

Para 16.7.1 of C&AG Report No. 3 of 2002 (Commercial) Titled " Avoidable expenditure due to creation of excessive handling capacity"

In January 1988, Oil and Natural Gas Corporation Limited (ONGC) approved construction of a Group Gathering Station (GGS) at a cost of Rs. 2.54 crore at Demulgaon (Eastern Region). The GGS was initially planned (1988) with a view to handle a capacity of 1000 Tonne per day (TPD) of oil which was subsequently increased to 1314 TPD in December 1990. The cost of GGS was also revised (July 1989) to Rs. 16.46 crore and further to Rs. 19.60 crore in April 1994. As against the completion schedule of December 1992, the GGS was completed at a cost of Rs. 18.05 crore in December 1999 and finally commissioned in June 2001. The cost over run was to the extent of Rs. 15.51 crore as compared to the original estimate of January 1988 and a time over run of over 8 years.

Since 1988 to March 1995, the production at Demulgaon field remained below 300 TPD, which was far below the projections made. Eastern Regional Business Centre of ONGC expressed (June 1993) doubts on the utilization of the GGS in view of the receding production potential of the field. The downward projections were further substantiated in February 1994 when reassessment of production profile of Demulgaon field was made. ONGC, however, continued with the construction of the GGS on the ground that after incurring an expenditure of Rs. 4.33 crore it would be difficult to turn back.

The table below indicates the projections made in 1990 and 1994 vis-à-vis actual production thereagainst:

Year	Anticipated production as per projections made in 1990	Anticipated production as per projections made in 1994	Actual production
	(Tonne per day)		
1993-94	867	320	229
1994-95	994	370	248

1995-96	1051	440	302
1996-97	1051	390	228
1997-98	1051	370	234
1998-99	1051	350	221
1999-2000	1051	--	214
2000-2001	1051	--	201

From the table it could be seen that actual production during all these years remained much below the production anticipated in 1990 and even in 1994. This indicated that the anticipated production was unrealistic and resulted in creation of facilities much in excess of their actual requirement by investing Rs.18.05 crore.

The Management stated (August 1999) that the prediction of reservoir performance was fraught with uncertainties and was highly probabilistic in nature. This was a case of parallel engineering for early production from projected wells and similar to creation of production facilities while the development of oil field was underway, keeping in view the peak requirement envisaged. Many a time expectations of earth science do not come up as predicted as in this case and the infrastructure developed for the same was utilised at a later stage as and when the requirement became evident.

The reply of the Management is not tenable due to the reasons that the development of infrastructure should directly co-relate and keep pace with the production trend. In June 1993, when it was evident that production of oil was much below the designed capacity of 1314 TPD of the GGS, the Management should have reconsidered the construction of GGS. Further, eight GGSs were available nearby to take care of the then and future production anticipated in 1994 besides surplus handling capacity available at nearby GGS IV. This was also evident from the fact that in spite of inordinate delay of over 8 years in commissioning the GGS, ONGC had not faced any problem in handling of the oil production at Demulgaon till June 2001.

The matter was referred to the Ministry in June 2001; their reply was awaited (October 2001).

APPENDIX - II

(vide Para 30 of the Report)

SUGGESTIONS AND RECOMMENDATIONS MADE BY THE STUDY TEAM CONSTITUTED BY THE MINISTRY OF PETROLEUM & NATURAL GAS VIDE O.M. NO. 0-22014/16/2001-ONG/US(EO) DATED 24 OCTOBER, 2002 TO UNDERTAKE AN INDEPENDENT STUDY ON THE CONSTRUCTION OF GGS AT DEMULGAON BY ONGC IN THE CONTEXT OF OBSERVATIONS MADE BY AUDIT VIDE PARA NO. 16.7.1 OF CAG REPORT NO. 3 OF 2002 (COMMERCIAL)

Considering the uniqueness of each project, the Study Team is of the view that in order to have optimal utilization, creation of such facilities need to be taken up based on individual merit. Notwithstanding, the following general suggestions and recommendations could be made for such onshore GGS, especially like the type of facility at Demulgaon:

1. Although the dynamic E&P business is beset with a large number of imponderables and uncertainties, future predictions for field(s) performance based on reliable and prudent data base which is history matched is extremely important. This coupled with the use of state-of-the-art technologies and skilled/experienced multi-disciplinary team efforts would greatly facilitate in making judicious assessment of future production behaviour. This needs to be duly considered.
2. Although review of performance behaviour and future production performance of the field, in the instant case, were taken-up at regular intervals, there was not enough flexibility in the conceptual design work. This should be appropriately catered for.
3. Timely creation of surface facilities, though a desirable feature for early realization of first oil on commercial basis from a discovery should also take into account the vagaries of predictions which are inherently probabilistic in nature. A balance between the two needs to be made at the conceptual stage itself. In this regard, an updated inventory of spare capacity available in the reasonable vicinity of area under consideration would be highly beneficial.
4. Creation of temporary surface production handling facilities for the initial period of a field, specially one of the marginal nature, is judicious option and may be followed.

5. A modular approach with provision for mid-course corrections, if needed, especially when the level of confidence of future production profile is not very high, should be considered. A typical comparison for multiple trains option for building up capacities as the production level rise for a facility similar to GGS-Demulgaon is tabulated below:

Capacity (m3/d)	1st and 2nd trains	3rd train	4th train	Total
2 X 900	100	-	-	100
3 X 600	80	30	-	110
4 X 450	72	24	24	120

Note: (i). Two trains have been assumed as desirable for maintaining the continuity of production.

(ii) 2 X 900 is taken as the base case as 100%

(iii) No escalation is considered for subsequent trains.

The above table shows a comparison on percentage of cost basis. For example, if we consider the cost of base case, i.e., two trains of 900 m3 /day as 100, the cost of 3 trains of 600 m3/day would be about 10% higher and that of 4 trains of 450 m3/day each would be about 20% higher. The percentage investment for the first two trains, of 600 and 450 m^3/day each, would be 80 and 72 respectively.

6. It is suggested that usage of modular skid mounted facilities that are easily transportable, with capacity ranging from 500 to 1000m3/day depending on transportability, roads conditions and other infrastructure etc. should be looked into. Such units have the added advantage that they can be re-located from one location to another depending on requirements.

7. Although the prevailing situation in the Region during the construction phase of Demulgaon GGS was not conducive, proper monitoring mechanism of work progress, even for “not very high value” contracts should be further strengthened and provision to be kept for mid-course correction, wherever possible/applicable.

8. As regards maximum capacity utilization of the plant, E&P activities in this prospective belt – the “golden neck” , should be expedited and production from not

only Demulgaon but also from other neighboring areas/fields including Charali, Changmaigaon etc. and crude oil from old and ageing facilities like Lakwa GGS, whenever required, should be brought and processed in the GGS at Demulgaon which is one of the most modern, energy efficient facility in the Region.

APPENDIX - III

(vide Para 38 of the Report)

Chronological statement indicating the examination of draft Audit para titled "Avoidable expenditure on over designing of capacity" relating to ONGC

Date of receipt of draft Audit para	:	13.6.2001
Date of reference to ONGC for comments by 16.7.2001	:	15.6.2001
ONGC reminded to expedite the comments	:	3.8.2001
ONGC reminded to expedite the comments	:	29.8.2001
DO to CMD from JS(M) for furnishing their comments by 28.9.2001	:	22.9.2001
CMD, ONGC again reminded to expedite their comments	:	8.10.2001
CMD, ONGC again reminded to expedite their comments	:	23.10.2001
Date of receipt of ONGC's comments	:	7.11.2001
ONGC's comments examined and referred to IFD	:	9.11.2001
IFD's observations dated 22.11.2001 referred to ONGC for clarification	:	23.11.2001

MAB's letter on the proposed inclusion of the draft para in the C&AG Report 2002 referred to ONGC for comments	:	26.11.2001
ONGC reminded to expedite their comments	:	15.2.2002
Date of receipt of ONGC's comments	:	15.4.2002
Date of examination of ONGC comments and referral to IFD for concurrence	:	19.4.2002
Date of receipt of IFD concurrence	:	16.5.2002
Reply sent to Audit	:	22.5.2002

1/Ganesh/Annexures

APPENDIX – IV

MINUTES OF THE 7th SITTING OF THE COMMITTEE ON PUBLIC UNDERTAKINGS HELD ON 11TH OCTOBER, 2002

The Committee sat from 1600 hrs to 1730 hrs.

CHAIRMAN

Prof. Vijay Kumar Malhotra

MEMBERS

LOK SABHA

8. Shri Ram Tahal Chaudhary
10. Shri C. K. Jaffer Sharief
12. Shri K. E. Krishnamurthy
6. Dr. Prasanna Kumar Patasani

14. Shri Chandra Nath Singh
16. Shri Tarit Baran Topdar
18. Shri V.Vetriselvan
20. Shri Dinesh Chandra Yadav

RAJYA SABHA

1. Shri Satish Pradhan
1. Shri K. Kalavenkata Rao
1. Shri Jibon Roy

SECRETARIAT

1.	Shri S. Bal Shekar,	Director
2.	Shri Raj Kumar	Under Secretary
2.	Shri P.V.L. N. Murthy	Under Secretary
4.	Shri T G Chandrasekhar,	Assistant Director

OFFICE OF THE COMPTROLLER & AUDITOR GENERAL OF INDIA

1.	Shri Vijay Kumar,	Dy C&AG-cum-Chairman
2.	Shri A K Awasthi	Principal Director(Comml)-cum-Secy
3.	Shri Gautam Gauha	Pr Director (Comml) Audit
4.	Ms. Geetali Tare	Asstt C&AG (Comml)

REPRESENTATIVES OF OIL & NATURAL GAS CORPORATION LTD.

1.	Shri Subir Raha,	Chairman & Managing Director
2.	Shri R. C. Gourh,	Director (Onshore)
3.	Shri J. M. Joshi,	Executive Dir-Corporate Planning
4.	Shri B. Basu,	DGM-Corporate Planning

REPRESENTATIVES OF THE MINISTRY OF PETROLEUM & NATURAL GAS

1.	Shri B. K. Chaturvedi,	Secretary (P&NG)
2.	Shri J. M. Mauskar,	Joint Secretary
3.	Dr. Surajit Mitra,	JS & FA
4.	Dr. B. Mohanty,	Joint Advisor (F)
5.	Shri N. K. Singh,	Director

24. At the outset, the officers from the office of Comptroller & Auditor General of India briefed the Committee on the Audit Para pertaining to ONGC Ltd. – `Avoidable expenditure due to creation of excessive handling capacity'.

33. The Committee then took the evidence of the representatives of ONGC Ltd. in connection with the Audit Para pertaining to `Avoidable expenditure due to creation of excessive handling capacity'.

(OFFICIALS OF ONGC THEN WITHDREW)

1. The Committee, thereafter, took the evidence of the representatives of Ministry of Petroleum & Natural Gas in connection with issues relating to the above Audit Para.

2. A copy of the verbatim proceedings has been kept on record separately.

The Committee then adjourned.

APPENDIX -V

MINUTES OF THE 12TH SITTING OF THE COMMITTEE ON PUBLIC UNDERTAKINGS HELD ON 31ST MARCH, 2003

The Committee sat from 1600 hrs to 1645 hrs.

A. CHAIRMAN

Prof. Vijay Kumar Malhotra

A. MEMBERS LOK SABHA

1. Shri Sudip Bandyopadhyay
1. Shri Ram Tahal Chaudhary
1. Smt Sangeeta Kumari Singh Deo
1. Shri K.E. Krishnamurthy
1. Dr. Prasanna Kumar Patasani
1. Shri Chandra Nath Singh
1. Shri Tarit Baran Topdar
1. Shri V. Vetriselvan

A. MEMBERS RAJYA SABHA

1. Shri Suresh Kalmadi
1. Shri Kalraj Mishra
1. Shri Satish Pradhan
1. Shri K. Kalavenkata Rao

A. SECRETARIAT

1. Shri S. Bal Shekar, Director

2. Shri C.S.Joon, Deputy Secretary

3. Shri Raj Kumar, Under Secretary

D. <u>OFFICE OF THE COMPTROLLER & AUDITOR GENERAL OF INDIA</u>

1. Shri P.K. Brahma, Chairman, Audit Board

2. Ms. Jayashri D. Kulkarni, OSD (Commercial)

3. Ms. Geetali Tare, Assistant C&AG of India

2. The Committee considered and adopted the following Draft Reports with some minor modifications:

(vi) xxx xxx xxx xxx

(vii) Oil and Natural Gas Corporation Ltd. – Avoidable expenditure due to creation of excessive handling capacity.

(The representatives of C&AG, then withdrew)

3. xxx xxx xxx xxx

4. The Committee authorized the Chairman to finalize these Reports on the basis of factual verification by Ministries/Departments concerned and present the same to Parliament.

5. xxx xxx xxx xxx

The Committee then adjourned.