REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA

UNION GOVERNMENT
No. 6 (COMMERCIAL) OF 1995

ELECTRONICS CORPORATION OF INDIA LIMITED

Report of the Comptroller
And Auditor General of
India

1995

No. 6 (Commercial) –
No. 12
(Except No. 9)

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PREFACE

Audit Boards are set up under the supervision and control of the Comptroller and Auditor General of India(CAG) to undertake comprehensive appraisals of the performance of the Companies and Corporations subject to audit by CAG.

2. The report on Electronics Corporation of India Limited was prepared by an Audit Board consisting of the following members:

1.Shri U.N.Ananthan	Deputy Comptroller and Auditor General-cum-Chairman,Audit Board from Ist June 1993 to 30th November,1993.
2.Shri C.K.Joseph	Deputy Comptroller and Auditor General-cum-Chairman,Audit Board from 13th December, 1993 to 20th March, 1995.
3.Smt. Sushma Sharma	Principal Director of Commercial Audit and Ex-Officio Member, Audit Board, Hyderabad.
4.Smt. Sudha Rajagopalan	Principal Director of Commercial Audit and Ex-Officio Member,Audit Board, Bangalore.
5.Shri B.B. Manocha	Director (Commercial), Office of the Comptroller & Auditor General of India, New Delhi.
6.Shri U.D.N. Rao Part time Member	Ex-Chairman-cum-Managing Director, ITI Ltd., Bangalore.
7.Shri M.R. Sitharaman Part time Member	Ex-Vice Chairman & Managing Director, KELTRON, Thiruvananthapuram.

The part time members are appointed by the Government of India (in the respective Ministry or Department controlling the Company or Corporation) with the concurrence of Comptroller and Auditor General of India.

3.The report was finalised by the Audit Board after taking into consideration the discussions held with the Department of Atomic Energy (DAE) on 9th February 1994.

4.The Comptroller and Auditor General of India wishes to place on record his appreciation of the work done by the Audit Board.

OVERVIEW

1. Electronics Corporation of India Limited (ECIL), Hyderabad was incorporated on 11th April, 1967. The present appraisal covers activities subsequent to 1981-82 in general and during the years 1987-88 to 1992-93 in particular.

(Para 1)

2. The Company had not finalised its micro objectives and got them approved by the Administrative Ministry so far (March, 1994).

(Para 2.3)

3. The Authorised and Paid-up Capital of the Company as at 31st March, 1993 were Rs.7000 lakhs and Rs.4522 lakhs respectively. The amount of loans outstanding as at 31.03.1993 was Rs.16959.93 lakhs.

(Para 4.1 to 4.4)

The debt equity ratio during the last 6 years ended 31.3.1993 climbed from 0.81:1 to 2.27:1.

(Para 4.5)

4. Between 1984-85 and 1991-92 the Company had taken up twenty-eight production projects out of which six were dropped, fourteen were productionised and eight are in the process of implementation. In the six productionised projects the cost over-run amounted to Rs.161 lakhs.

(Para 5)

5. The operations of the Supermini Computer Project (set-up for Rs.987 lakhs) during the five years ended 1990-91 resulted in a loss of Rs.654 lakhs. Raw material worth Rs.139.47 lakhs was lying unutilised as on 31st March 1993 due to lack of demand and the Company had written-off work-in-progress involving Rs.171.93 lakhs. Against the projected sale of 165 systems the Company actually could sell only 56 systems.

(Para 5.1)

6. The execution of the order for Automatic Message Accounting systems resulted in a cash loss of Rs.144.67 lakhs and components worth Rs.54.74 lakhs were lying surplus.

(Para 5.2)

7. The Company had been making profits till 1989-90. However, in 1990-91 and 1991-92 the Company suffered heavy losses.

(Para 6.1(ii))

8. There was no Costing Manual in the Company. No standard costing system had been introduced.

(Para 6.1.(iv))

9. The installed capacity in respect of certain products was expressed in financial terms only. The installed capa-city adopted by the Company for evaluation of its performance represented only the production plan. The Company had been computing and reporting the capacity utilisation expressed in terms of standard man hours. The percentage of utilisation had been coming down year after year upto the year 1991-92.

(Paras 6.2 and 6.3)

10. Though the Company had its own manufacturing facilities at Hyderabad and a unit at Tirupathi, where the land acquired was lying idle, still another unit with a designed capacity for manufacturing 6000 Colour TVs and FM Antennas was established (August 1987) at Aurangabad. The cost of production of Colour TVs at Aurangabad proved to be higher than those produced in Hyderabad. The Company stopped production of colour TV sets at Aurangabad unit from 1991-92.

(Para 6.3.(iv))

11.The DOE project for manufacture of Mainframe Computers assigned to the Company was established at a total cost of Rs.3169.67 lakhs and went into commercial production in February 1990.The working of the Unit (MCU) for the first two years resulted in a loss of Rs.104 lakhs and Rs.782 lakhs respectively. The Company did not consider it commercially viable and a resolution was passed (October 1991) at the Annual General Body Meeting of ECIL authorising the Board to take-up all necessary steps for transfer the unit to DOE. Pending a final decision, the cumulative loss of Rs.4441.29 lakhs as on 31.3.1993 in respesct of the unit was shown in the accounts of the Company as recoverable from DOE for which confirmation was awaited.

(Para 6.3.(v))

12. (a)There was no system for ascertaining the utilisation of machinery and for analysing the reasons for idle hours. The decision of the Company to maintain, from April 1991, the records of machine utilisation in respect of machines and equipment whose original cost was more than Rs.5 lakhs was yet to be implemented (March 1993).

(Para 6.5 (i))

(b)The Company has an Electrolyte impregnation equipment, the utilisation of which was far below the capacity; yet another impregnation equipment was procured at a cost of Rs. 87.06 lakhs.

(Para 6.5.(ii))

13. (a)A comprehensive Stores and Purchase Manual had not yet been prepared.

(Para 6.7.(i))

(b) The Company procured certain materials in advance/excess of actual requirement. The value of surplus items amounting to Rs.31.46 lakhs was written-off in the accounts.

(Para 6.7.(ii) & 6.7 (iii))

(c) Stock of raw materials held by the Company as at the close of the three years ended 1989-90 was in excess of the norm fixed by the Board, resulting in blocking of funds.

(Para 6.7.(v))

(d) The value of the non-moving items of inventory included in the inventory holding as on 31.3.1993 was as high as Rs.430 lakhs.

(Para 6.7.(vi))

(e) The cost of finished goods and work-in-progress written-off during 1989-90, 1990-91 ,1991-92 and 1992-93 was high.

(Para 6.7.(vii))

14. (a) Surplus manpower was being re-deployed through re-training and VRS.

(Para 6.8 (ii))

(b) The Company had different Incentive Schemes applicable for workmen and officers. Implementation of these Incentive Schemes at a sizeable expenditure of Rs.1230.64 lakhs in the years 1985-86 to 1992-93 did not yield the desired results.

(Para 6.8.(v))

15. (a)Sales fell short of revised estimates during the years 1987-88 to 1992-93 and the Company had not analyzed the reasons.

(b) Due to delays in execution of sale orders the Company incurred liquidated damages of Rs.659.30 lakhs during the five-year period ended 1992-93.

(c) There was no specific pricing policy for the Company's products.

(d) The debtors had been increasing steeply and were in excess of the norm of two months sales fixed by the Board.

(Paras 7.1 to 7.9)

16. Internal Audit had not carried out a critical review of systems, procedures and operations etc.

(Para 8.0)

CHAPTER-1

INTRODUCTION

1.1 Electronics Corporation of India Limited (ECIL) was incorporated on 11th April 1967. It is under the administrative control of the Department of Atomic Energy (DAE) and has its registered office at Hyderabad.

1.2 A Comprehensive Appraisal on the working of the Company upto the year 1981-82 was included in the Report of the Comptroller and Auditor General of India - Union Government (Commercial) 1982 - Part-V. The results of the study of the activities of the company subsequent to the period 1981-82 in general and during the years 1987-88 to 1992-93 in particular are brought out in the present report.

CHAPTER-2

OBJECTIVES

2.1 The main objectives of the Company are incoporated in its Memorandum of Association.

2.2 The major policies of the Company for the period 1985-90 were enunciated in its VII Five Year Plan approved by the Board in December 1983.

2.3 The Company had not finalised its micro objectives and got them approved by the administrative ministry viz. DAE, so far (March 1994) as required by the BPE guidelines and Government directives (May 1979/February 1984).

2.4 DAE stated in March 1994 that the Company submitted the micro objectives in November 1984 and subsequently (May 1985) placed them before the Board for approval. Though the Board desired to engage outside consultancy to come out with integrated objectives after a thorough study of the organisation, this was not pursued further. In the meantime the concept of signing the Memorandum of Understanding (MOU) emerged and the Company started signing the MOUs since 1992-93.

2.5 It is, however, pertinent to note that the system of finalisation and adoption of micro objectives has not been dispensed with in cases where MOUs were signed and as such signing of the MOU could not be considered to be a substitute for spelling out the micro objectives.

CHAPTER 3

ORGANISATION

3.1 The Company is headed by a Chairman and Managing Director who is assisted by three functional Directors viz., Director-Technical, Director-Finance and Director-Personnel.

3.2 The Company was re-organised (March 1981) into seven Business Groups for improved efficiency by decentralisation of authority. Each Group is headed by an Executive Director/General Manager.

CHAPTER 4

CAPITAL STRUCTURE

4.1 The authorised and paid-up capital as at 31st March 1993 was Rs.7,000 lakhs and Rs.4522 lakhs respectively.

4.2 The Company declared dividends at 5% in 1972-73 (Rs.18.75 lakhs) and at 6.5% in 1973-74 (Rs.30.87 lakhs) and no dividend was declared thereafter.

4.3 The General Reserve was Rs.1555.92 lakhs at the end of the year 1989-90; it decreased to Rs.1286.71 lakhs by the close of 1990-91 and became NIL by the end of 1991-92 - the position remained unchanged to end of 1992-93.

4.4 From time to time, the Government had granted loans to meet the capital expenditure, working capital requirements etc. of the Company. The loans outstanding as at 31st March 1993 were to the extent of Rs.3915.55 lakhs.

4.4.1 The Company also obtained foreign currency loans of which a sum of Rs.5222.95 lakhs was outstanding as at 31st March 1993.

4.4.2 Further, the Company issued (February 1989) 13% Redeemable Bonds (Guaranteed by Government of India) to Unit Trust of India for a total value of Rs.1000 lakhs to be redeemed at the end of 7th year at par.

4.4.3 The short term loans outstanding as at 31st March 1993 amounted to Rs.6821.43 lakhs.

4.5 The debt equity ratio for the last six years ended 31st March 1993 stood at 0.81:1, 1.16:1, 1.31:1, 1.56:1, 2.39:1 and 2.27:1. Increase in the debt equity ratio in 1991-92 was mainly on account of increase in foreign currency loans due to exchange rate variations and reduction in Reserves and Surplus.

CHAPTER 5

DEVELOPMENT AND PROJECTS

During the period 1984-85 to 1991-92, the Company had taken up twenty eight production projects. Of these, fourteen projects were productionised, eight were in the process of implementation and six were dropped. There were cost overruns in respect of the following six productionised projects:

Project	(Rs in lakhs) Estimated cost	Actual cost	Cost overrun
1.Technical Ceramics	53	59	6
2.Printed Circuit Boards	179	202	23
3.EAST Packages	221	309	88
4.Supermini Computers	950	986	36
5.30 Channel PCM MUX	112	116	4
6.HF Intercept Receivers	29	33	4

DAE stated in December 1993 that while preparing the procurement proposals/project reports, budgetary quotes were considered whereas the actuals were on the higher side due to the gap of nearly 3 to 4 years in the commencement of the project. The cost overruns in some of the productionised projects were stated to be due to exchange rate variation and price escalation in the capital equipment procured and additions to the civil works.

As the Company/DAE were well aware of the fast changing technology in the electronics industry which was subject to rapid obsolescence, the gap of nearly 3 to 4 years in commencement of the project could not be considered to be in the interest of the Company.

5.1 Supermini Computer Project: For manufacture of Supermini Computer systems, the Company established by, 1988-89 the facilities at a capital cost of Rs. 371

lakhs and further an amount of Rs. 616 lakhs was paid to a Norwegian company towards technical know-how fees to the end of 1989-90.

The Company imported 25 complete systems during 1986-87 and 65 CKD systems during September 1987 to November 1990 at a total cost of Rs. 711 lakhs.

A review of the execution of the project revealed that the Company:

- continued to get the technical assistance till 1989-90 (as against 1986-87 planned originally);
- incurred an infructuous expenditure of NOK 523458 (Rs.12.08 lakhs) being the technical service charges paid on the unutilised portion of man days;
- had written off work in progress valued at Rs.171.93 lakhs during the period 1989-90 to 1991-92 mainly because of the emergence of a different system as the standard platform;
- retained unutilised raw materials worth Rs.139.47 lakhs as on 31-3-1993;
- could sell during the period 1986-87 to 1990-91 only 56 systems valued at Rs. 3768 lakhs as against the projected sale of 165 systems valued at Rs.6443 lakhs.

The operations of the project over the five years period ended 1990-91 resulted in a net loss of Rs.654 lakhs.

The Management, during discussions in July 1993, mentioned that the Company was hopeful of getting orders from certain customers viz., SAIL etc. for the systems in hand.

DAE contended in December 1993 that the amount charged by the Norwegian company (M/s Norsk Data) for technical services was a package price. This,

however, was not borne out by the collaboration agreement which clearly laid down the rate at which the collaborator was to be paid per man working day for the technical services rendered by them in India. On a specific query whether any attempt was made to negotiate for a reduced payment based on the lower actual utilisation of mandays, DAE replied in March 1994 that in the absence of such an enabling provision in the agreement it did not seek any rebate for the unutilised mandays for technical services. It was also stated that at the time of entering into the collaboration agreement, the number of mandays was assessed with abundant caution .

5.2 Automatic Message Accounting (AMA) Systems: The Mahanagar Telephone Nigam Limited (MTNL) intended to procure Automatic Message Accounting (AMA) systems for its exchanges. To avoid imports, the Department of Electronics (DOE) advised the Company to develop the systems locally for supply to MTNL. Though the Company did not have the technical know-how, it undertook to develop, manufacture and supply Automatic Message Accounting Systems at an agreed price of Rs.310 per line. MTNL placed two orders (in March, 1987 for 5400 lines - as revised and in February, 1989 for 80700 lines) for a total capacity of 86100 lines.

The Company entered (October 1988) into a memorandum of understanding (MOU) and materials supply agreement (MSA) with a supplier of USA (M/s Alston, USA) for supply of imported components at an agreed price of US $ 9.25 lakhs (to be firm during the period of agreement) which however was revised to US $ 9.55 lakhs. A revised MSA was entered into on 20th February 1989 and the Company initiated in March 1989 action for procurement of materials, even prior to placement of the item before its Board in December 1989. But the customer reduced (in November, 1989 and in September, 1991) the order of February, 1989 by the equivalent of 38200 lines thus bringing down the ordered quantity to 43600 lines . Inspite of the reduction, the Company procured materials / components valued at Rs.368.12 lakhs intended for all the 94600 lines originally indented (including 10% spares).

A review of the case revealed the following:

- lacking necessary technical expertise the Company attempted technological leap frogging, which necessitated the import of components, equipments etc. valued at Rs.337.35 lakhs. Thus the avoidance of imports, which was envisaged by DOE, could not be secured.

- the increase in price to US $ 9.55 lakhs because of a ' give and take' policy, led to incurrence of an infructuous expenditure of Rs.5.43 lakhs.

- though the MOU provided for cancellation of pending orders, in the event the foreign supplier did not successfully complete its acceptance test procedure and performance evaluation with regard to another direct order placed by MTNL on that supplier, this condition was not invoked inspite of the fact that the cumstomer reduced the ordered quantity in November 1989 and in September 1991 and evaluation tests on MTNL's direct order were pending even by June 1992. As a result, the Company had to incur an infructuous expenditure of Rs.54.74 lakhs being the cost of components rendered surplus (as on 31-3-1993) due to unilateral short closure of the order by the cumstomer against whom the Company could not take any action due to the absence of an enabling clause.

All the six systems with a total line capacity of 43600 were manufactured after some delays at a total factory cost of Rs.347.49 lakhs and supplied by January 1992 to the customer realising only Rs.172.99 lakhs (excluding taxes), which did not even cover the material cost (Rs.215.42 lakhs) and the software cost (Rs.102.24 lakhs) thus leading to a cash loss of Rs.144.67 lakhs.

DAE in its reply dated 23rd March 1994, stated that the very fact that MTNL accepted the systems supplied by ECIL was indicative of the fact that there was no lapse as far as the acceptance test procedure was concerned. This however, was not

tenable for, the possible cancellation was not linked to the execution of the order by ECIL, but to another contract of MTNL with the foreign supplier. Further the Company supplied its systems to MTNL only by January 1992, after receipt of all supplies from the foreign supplier. By November, 1989 when the customer reduced the order to 38200 lines, the collaborator was yet to despatch components worth US $ 168625 (against the ordered value of US $ 337243) and therefore it was open to the Company to cancel the order for the balance items immediately after it had come to know about the reduction in the order by MTNL.

The other contention of DAE that the Company did not contemplate cancellation in view of the tenders floated by DoT proposing procurement of a huge number of systems was also not tenable as what DoT wanted (in September, 1989) was ECIL's willingness to transfer the manufacturing information for common application (but not the systems) which was prohibited in terms of Clause 19 of the MOU with the foreign supplier.

CHAPTER 6

PERFORMANCE

6.1(i) Financial position: The following table summarises the financial position of the Company for the last six years ended 31st March 1993.

(Rs. in Lakhs)

	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
LIABILITIES						
a) Paid-up-Capital	3622.00	3922.00	4222.00	4422.00	4422.00	4522.00
b) Reserves & Surplus						
i)Free Reserves & Surplus	1754.75	1874.99	1938.51	1286.71	--	--
ii)Committed Reserves	167.15	350.75	616.12	293.64	293.60	330.00
c) Borrowings						
i)From Govt. of India.	3681.80	4098.08	4046.03	3924.20	3646.51	3915.55
ii)Foreign Currency Loan	676.02	2120.39	3050.61	3838.18	5777.57	5222.95
iii)From Banks	1117.11	1507.23	3947.17	3514.66	4702.82	4154.82
iv)Others	1207.67	555.16	653.01	3036.90	3138.04	2789.53
v)13% Redeemable bonds	--	1000.00	1000.00	1000.00	1000.00	1000.00
d) Trade dues & current liabilities(including provisions and interest accrued and due on loans)	12878.63	14922.31	16395.82	13939.23	14731.60	15197.51
Total	25105.13	30350.91	35869.27	35255.52	37712.14	37132.37
ASSETS						
e) Gross Block	5670.39	7662.27	9667.47	10953.42	11607.48	11891.29
f) Less: Depreciation	2870.35	3725.10	4829.86	6032.75	7240.35	8164.97
g) Net fixed assets	2800.04	3937.17	4837.61	4920.67	4367.13	3726.32
h) Fixed assets in transit and under installation	681.18	447.73	534.58	409.36	65.54	363.34
i) Capital jobs-in-progress	206.06	88.16	271.88	289.05	8.82	4.71
j) Investments	0.03	0.03	0.03	26.82	26.82	26.82
k) Current Assets, Loans and Adv.	20573.23	24622.26	28388.65	28257.46	32608.61	32415.14
l) Misc.expenditure not written off	844.59	1255.56	1836.52	1352.16	52.15	122.76
m) Balance in P & L Account	--	--	--	--	583.07	473.28
Total	25105.13	30350.91	35869.27	35255.52	37712.14	37132.37
Capital employed	10494.64	13637.12	16830.44	19238.90	22244.14	20943.95
Net worth	4532.16	4541.43	4323.99	4356.55	3786.78	3925.96

Note: 1 Capital employed represents net fixed assets plus working capital

2 Net worth represents paid-up capital plus free reserves and surplus less intangible assets.

The Net worth as on 31st March 1993 was Rs.3925.96 lakhs as against the paid up capital of Rs.4522 lakhs and total borrowings of Rs.17082.85 lakhs.

6.1(ii) Working Results: The working results of the Company during the six years ended 31st March 1993 are given below:

(Rs. in lakhs)

	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
1. Sales (including Departmental Transfers and service income)	18417.70	21493.07	26807.96	26211.55	22206.33	28607.41
Less:Excise duty and sales tax	2515.66	2728.29	2397.25	2198.25	2140.96	2508.74
2. Net sales	15902.04	18764.29	24410.71	24013.30	20065.37	26098.67
Accretion(+)/ Decretion(-) in finished goods and Work-in-Progress	(+)989.57	(+)1607.19	(-)299.28	(+)475.92	(-)748.11	(+)243.97
3. Value of Production	16891.61	20371.97	24111.43	24489.22	19317.26	26342.64
Less:consumption of raw materials and components	9734.64	12114.12	14113.53	15015.18	11338.18	14958.84
4. Value added	7156.97	8257.85	9997.90	9473.39	7979.08	11383.80
Less:						
5. Total conversion cost	6024.96	8050.04	9609.34	10491.35	10687.90	11042.33
6. Profit/loss for the year (4-5)	1132.01	207.81	388.56	(-)1017.96	(-)2708.82	(+)341.47
7. Prior period items	(-)155.08	(+)110.03	(+)3.28	(-)19.55	(-)49.15	(-)237.09
8. Net Profit/loss before tax	976.93	317.84	391.84	(-)1037.51	(-)2757.97	104.38
Less: Provision for tax	416.16	14.00	63.00	Nil	Nil	(-) 5.40
9. Net Profit/loss after tax	560.77	303.84	328.84	(-)1037.51	(-)2757.97	109.78
10. Percentage of						
(a)Value added to value of production	42.37%	40.54%	41.47%	38.68%	41.31%	43.21%
(b)Conversion cost to value added	84.18%	97.48%	96.11%	110.75%	133.95%	97.00%
11. Percentage of profit before tax:						
(a)to sales	5.41%	1.50%	1.48%	--	--	0.36%
(b)to Gross fixed assets	17.23%	4.15%	4.05%	--	--	0.88%
(c)to Capital employed	9.31%	2.33%	2.33%	--	--	0.50%

Inspite of substantial increase in the value of production, there was a fall in the profit during the years 1988-89 and 1989-90. The Company after having faced heavy losses in 1990-91 and 1991-92 [even after excluding the loss of Rs.3440.33 lakhs in

respect of Main-frame Computer Unit(MCU) for 1991-92] made a small profit of Rs.104.38 lakhs in 1992-93. The operations of the Company during the years 1989-90 and 1990-91 were severely affected due to the losses of Rs.104.03 lakhs and Rs.780.26 lakhs respectively suffered in the Main-Frame Computer Unit of the Company. The cumulative loss of Rs.4441.29 lakhs pertaining to MCU was shown in the accounts for 1992-93 as reimbursible by Government of India (DOE) for which confirmation was awaited(March, 1993).

The Company gave the following reasons for losses in 1989-90:

- increase in material cost;
- underutilisation of production capacity; and
- market constraints

To overcome these problems and improve the profitability, the Company proposed in October 1990:

- Phasing out the non-remunerative products,
- Revising prices wherever possible,
- Close monitoring and control of controllable expenses and reducing working capital; and
- Finalisation of wage revision schemes to boost the morale of workmen and officers.

Inspite of these remedial measures, the operations for the year 1990-91 and 1991-92 proved unsatisfactory inasmuch as the Company suffered losses as mentioned. According to the Management, the following were the main reasons for the dismal performance:

- Loss of production due to bandhs and disturbed conditions;
- Adverse variation in exchange rates resulting in increase in the costs of imported raw materials; and
- Lower margins in the electronics industry due to stiff competition.

6.1(iii) **Profitability analysis**: The business group-wise profitability for the six years ended 1992-93 was as follows:

(Rs. in lakhs)

Group	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
Instruments (I.G)	123.88	10.68	1285.00	381	(-)181.82	(-)269
Components and Special Products(CSPG)	(-)16.25	(-)381.38	(-)594.00	(-)442	(-)956.93	(-)265
Control Systems (CSG)	206.83	257.33	59.00	161	(-)400.85	(-)159
Computers(CMG)	140.51	100.63	(-)391.00	(-)174	(-)539.28	590
Consumer Electronics(CEG)	141.60	(-)179.61	(-)505.00	(-)552	(-)551.28	(-)770
Communication Systems(CNSG)	275.51	436.28	596.00	168	(-)230.29	416
Military Systems(MSG)	104.85	73.91	46.00	203	102.49	243
Main Frame Computer Unit(MCU)	--	--	(-)104.00	(-)782	--	--
TOTAL	976.93	317.84	392.00	(-)1037	(-)2757.97	104

The following position emerges:

- the total loss suffered in CSPG, CMG and CEG & MCU in 1989-90 worked out to Rs.1594 lakhs.

- the performance of these groups even in 1990-91 continued to be unsatisfactory.

- the Company suffered heavy losses in 1990-91 and 1991-92 and

- CSPG continued to suffer heavy losses in all the years.

The Company stated (August 1991) that in CSPG, the technology change was very fast and that Electronic Components Manufacturing Unit required a larger investment to achieve mass production and sale without which losses were inevitable. This, however, was not tenable for, inspite of additional investments, this group continued to suffer huge losses during 1988-89 to 1991-92 (Ref:Chapter 7)

According to the Management(August 1992):

- profitability of the activity was not the major goal when self sufficiency was aimed at

- with the liberalisation of imports, indigenous components became financially unviable

- there were problems connected with discontinuance of unprofitable items.

Apart from wage revision, DAE gave the following specific reasons for poor performance of CMG and CEG .

CMG - 1989-90

- increased consumption of materials due to change in the product mix; and

- adoption of higher percentage for deration of value of spares

- slump in the market in respect of CEG items resulting in non-absorption of fixed overheads to a great extent.
- paucity of orders from user Government Departments.
- increase in interest burden due to extending credit sales and
- higher selling expenses.

The poor performance of the Company in 1991-92 was stated (February 1994) to be mainly due to foreign exchange difficulties besides lack of orders.

6.1(iv) Costing System and Cost Control

(a) Costing Manual: The absence of a costing manual in the Company was pointed out in para 8.01 of Part V of Report of CAG, Union Government (Commercial) 1982. The Manual had not been finalised even now (March 1993).

(b) Costing system: The Company has been following job costing, batch costing and multiple costing systems as the case may be depending upon the requirements of the individual business groups.

(c) Standard Costing : Inspite of the specific instructions of COPU and BPE, the Company had not introduced (March 1993) the standard costing system, on the plea that its products were primarily custom built and barring a few exceptions not repetitive in nature. It was also stated in August 1992 that in an environment where nearly 70% of production was based on individual customer needs, uncertainty, technological changes and low volume demand for certain items, evolving standards was not practical and economical. It was further stated that preparation of variance analysis might not serve any purpose in this context.

The stand taken by the Company was, thus, not found to be in conformity with the categorical instructions of BPE and the specific observations of COPU.

(d) Cost Control: The Company had neither fixed standard norms for consumption of materials and labour time even for the items of repetitive nature nor had it prepared product-wise cost estimates for purposeful comparison with actuals and to carry out the variance and profitability analysis.

Except in CSG and CMG (from 1988-89) the direct time spent by the executives on certain jobs/parts of the jobs was ignored.

The analysis of idle time of labour and of machines and cost thereof was not being determined and reported to the Management.

There was no system of ascertaining the cost of rejections.

The work-in-progress as at the year end was being valued at cost or estimated realisable value whichever was lower as per the accepted accounting principles. However, in respect of certain items of work-in-progress , the realisable value was carried over to the next year's cost sheet and so on till the item was converted into finished goods. This incorrect procedure resulted in the cost of the finished goods in the cost sheets not represent the real cost due to omission of the difference between cost and estimated realisable value of the work-in-progress.

DAE admitted (March 1994) that the prices of various systems supplied by ECIL cannot fully cover the costs in the present competitive environment and that with a view to control the costs with reference to the prices quoted, there was need for working out the estimates of materials in the form of a bill of materials and the direct labour hours to complete the job which could form the basis for comparison with actuals as the work progressed. This would help the production divisions/groups to control the costs and to achieve the maximum contribution.

DAE also acknowledged that presently though the estimates were prepared for various products, they were not being systematically used for cost control. It contemplated refinement of the present system by directing all production divisions/groups to implement and use the system for proper cost control and maximisation of contribution on each of the products/systems quoted and supplied.

During the discussions with the Audit Board (February 1994) DAE favoured the idea of introduction of the standard costing system in a selective way to the extent possible.

6.2 Capacity Utilisation

6.2(i) Installed capacity: The details of the actual production vis-a-vis the installed capacity in respect of various products manufactured during the six years ended 31st March 1993 are given in the Annexure-I. In certain cases the installed capacity was expressed in financial terms only. In respect of another public enterprise dealing in electronics where the installed capacity was expressed in financial terms, the COPU in their 3rd Report (1971-72) observed that the rated capacity of the plant should be fixed in terms of physical output as the value of production was liable to change.

According to DAE, the various guidelines of BPE and COPU, were more relevant to the industries where specific items were produced with repetitive manufacturing processes and were machine oriented, unlike an electronics industry like ECIL where the capacities mainly comprise of technical skills and testing and measuring equipment, which could be used for multiple purposes. With regard to licences obtained in monetary terms, it was clarified that due to constraints associated with production of custom built items acccording to the customers' choice, quantification in physical terms was difficult.

Consequently, the comparison of actuals with the installed capacity is affected by fluctuations from time to time in the rupee value and price index. This apart,

the increase or derating of installed capacity had not been specifically got approved by Government of India as required.

As regards non-utilisation/low utilisation of the installed capacities, the Company stated in November 1991 and December 1993 that utilisation depended upon several factors like market demand, items of custom built nature, items of complexity and phasing out of products. It was not clear how the optimum capacity utilisation was being ensured.

6.2(ii) Assessment of Capacity Utilisation: The Company has been computing and reporting the capacity utilisation in terms of standard man-hours which also included the standard man-hours utilised through the sub-contracting efforts for which details were, however, not available. The reasonableness of the actual levels of in-house man power utilisation was not susceptible of identification.

The Management, however, stated in February 1994 that the manpower utilisation figures would be confined to the utilisation of man power of the Company only.

The capacity utilisation in terms of man power is shown below:

Year	Percentage of capacity utilisation
1987-88	92.82
1988-89	83.52
1989-90	75.17
1990-91	68.60
1991-92	65.68
1992-93	85.00

The percentage of capacity utilisation in terms of man-power utilisation had been steadily declining year after year upto 1991-92.

6.3 Production Performance

6.3(i) Product Range

The Company had 7 business groups:

BUSINESS GROUP	PRINCIPAL PRODUCTS
Instruments Group (IG)	Nuclear, medical and industrial instruments and systems, closed circuit TV, fire alarm systems, X-Ray baggage inspection systems and special systems for Railways, Defence.
Components and Special Products (CSPG)	Nickel Cadmium batteries, Tantalum capacitors, potentio meters, semi-conductor devices, printed circuit boards, hybrid micro-circuit ceramic components and other special products.
Control Systems Group (CSG)	Electronic Automation systems for Steam Turbines (EAST), Packages for Thermal Power Plants, data and instrumentation equipment for nuclear power plants, Defence, Railways, Process industries tele-supervisory systems, servo-systems, electro-mechanical systems.
Computer Group (CMG)	Digital Computer and computer based systems for real-time, scientific and business applications.
Consumer Electronics Group (CEG)	Colour and Black & White TV receiver sets
Communication systems Group (CNSG)	Radio communication systems in the HF, VHF, and UHF bands, ground based satellite communication equipment, digital transmission system, Facsimile E.W. Systems, design, development, fabrication, production, supply and erection of antenna systems.
Military Systems Group (MSG)	Special Defence Projects

Apart from the main manufacturing facilities at Hyderabad, the Company has two more units, one at Tirupathi and the other at Aurangabad for manufacturing TV sets and antenna products.

6.3(ii) Production : The data below indicates the growth of electronics in the country the contribution of the Company during the VII Plan period.

	1985-86	1989-90	Percentage of growth	Average growth rate per annum
	(Rs. in lakhs)			
Production of Electronics in the country	288000	921000	.220%	35%
Value of production of electronics by ECIL	11666	23288	99.6%	19%
Percentage of production of ECIL to country's total production	4.05%	2.53%		

The Company's annual average growth rate of production was only 19 percent, much below the country's growth rate of 35 percent. The Company's share of the production in the country fell to 2.53 percent.

The following table indicates the production performance during the six years' period ended 1992-93:

Year	Installed capacity		Budget esti-mates	Revised estima-tes	Actuals	Percentage of actuals to	
	Budget Estima-tes	Revised Estimates				Budget Esti-mates	Revised Esti-mates
			(Rs. in lakhs)				
1987-88	17037	16144	17037	16144	16879	99%	105%
1988-89	18232	19833	18232	19833	20395	112%	103%
1989-90*	22192	25037	22192	25037	23288	105%	93%
1990-91*	25584	24715	25584	24715	21660	85%	88%
1991-92*	26931	23882	26931	23882	18809	70%	79%
1992-93*	28319	26662	28319	26662	25186	89%	94%

* Excluding Mainframe Computer Unit (MCU)

The capacity utilisation during the entire period and the production performance from 1989-90 to 1992-93 had fallen short of the estimates. The "installed capacity" adopted by the Company for evaluation of its performance was nothing but the production plan as reflected in the budget estimates and revised estimates. It varied in both the original estimates and the revised estimates in all the years. Thus, in the absence of the data in physical terms, it is not known how the Management could assess the capacity utilisation and setting of the targets and how the Board of Directors was able to exercise control on production activities. The Company conceded in August 1992, that installed capacity was nothing but the production plan and stated that this notional installed capacity was the only norm available to assess performance of the Company.

It was further stated in July 1993 that though the reporting to the Board/Government of India was being done in financial terms only, the evaluation of performance in physical terms was also being done internally. It was also mentioned that the varied mix of products and technologies involved was the major constraint in specifying capacity purely in physical terms. Thus, the performance highlighted by the Company based on a notional installed capacity did not facilitate proper evaluation. The installed capacity, therefore, remained to be accurately worked out by the Company based on the facilities created, and expressed in more suitable and acceptable terms.

Though the actual performance had been less than the targets in certain years, still the Company did not periodically analyse the specific reasons and report to the Board regularly for taking corrective measures for improvement in the production and the profitability. However, the following reasons were given by the Company in its Annual Reports:

- power shortages and continuous draught conditions;

- loss of work due to bandhs and disturbed conditions in twin cities of Hyderabad and Secunderabad;
- slump in the demand for colour TVs coupled with severe competition;
- lack of orders from Defence sector;
- recession in computer and consumer electronics sectors; and
- paucity of orders from user Government departments.

6.3(iii) Groupwise Production Performance: The details regarding groupwise production for the last six years ended March 1993 are given in Annexure-II.

It was observed that in all the years there were variations between the Budget Estimates and Revised Estimates expressed in financial terms. The actual performance in the following groups fell short of the targets envisaged in the Revised Estimates in the years shown against each;

Group	Year
CSPG	1988-89 to 1992-93
CSG	1987-88 to 1992-93
CMG	1987-88 to 1991-92 except in 1989-90
IG	1992-93

The performance of CEG had come down from 1989-90.

The performance of the Company as a whole during the last four years ended 1992-93 was less than the Revised Estimates for the following reasons:

- procedural delays involved in the stage inspection carried out by the Defence authorities and clearance for bulk supplies of VT fuzes (CSPG Group);
- lack of orders from Defence Sector for the products of Components Group (1989-90);

- severe competition from private sector (1989-90);
- continued recession in computers (1990-91) and consumer electronics market (1989-90 to 1992-93);
- disruptions due to certain reasons (1990-91).

However, CSPG does not cater to the needs of Defence requirements alone and the procedural delays etc., were not new and unknown to the Company before fixation of the targets and apparently the projections in respect of CEG for the three years ended 1992-93 did not take into consideration the general recession in the market for TV sets.

6.3(iv) Injudicious investment in Aurangabad Unit : Based on a techno- economic survey and to avail of a lower rate of sales tax the Company established (1987-88) a manufacturing unit at Aurangabad with a total investment of Rs.217.97 lakhs (as on 31.3.1993) for manufacturing colour TV sets, antenna products etc.

Though initially a turnover of Rs.400 lakhs, Rs. 800 lakhs and Rs.1200 lakhs was contemplated from this Unit in the three years 1987-88, 1988-89 and 1989-90 respectively, the projections for 1987-88 were revised (August 1987) to Rs.250 lakhs. The actual production since its inception to end of 1992-93 is shown below:

Year	Designed capacity for TVs (nos)	Production of Colour Tvs (nos)	Ratio of actual prod- to designed capacity (%)	Colour TVs		Antenna products		Total	
				Targets	Actuals	Targets	Actuals	Targets	Actuals
								(Rs. in lakhs)	
1987-88	--	1000	--	Nil	32.00	Nil	Nil	Nil	32.00
1988-89	6000	3493	58.22	142.00	181.64	12.00	12.03	154.00	193.67
1989-90	3600	1388	38.56	104.00	72.18	402.72	362.02	506.72	434.20
1990-91	2100	711	33.86	36.40	39.92	131.07	90.70	167.47	130.62
1991-92	--	--	--	--	--	275.00	211.01	275.00	211.01
1992-93	--	--	--	--	--	400.10	189.59	400.10	189.59

It would be seen that:

- the Unit did not achieve the targeted production in the last four years; and
- the percentage of actual production of TV sets to the designed capacity declined year after year.

The cost of production of colour TV sets produced at Aurangabad was much higher than similar models produced in Consumer Electronics Group, Hyderabad.

The Unit attributed the high cost of production to low volume of production and consequent high incidence of overheads. Further, the Government of Maharashtra subsequently withdrew the lower rate of sales tax. In view of the unsatisfactory performance, the Company stopped production of colour TV sets at Aurangabad Unit from 1991-92.

The capacity utilisation of the colour TV sets manufacturing group at Hyderabad during the period 1985-86, 1986-87 and 1987-88 was only 71.94 percent, 72.55 percent and 62.47 percent respectively. Keeping the existing capacity idle to a certain extent at one place and setting up another unit elsewhere with a substantial investment was not, therefore, a judicious decision.

6.3(v) Mainframe Computer Unit

(a) The Government of India assigned the Mainframe Computer Project to ECIL for implementation. An independent unit called Mainframe Computer Unit was set up on 1st July 1986. As against the approved project cost of Rs.3955 lakhs (revised) the actual expenditure incurred amounted to Rs.3169.67 lakhs.

The Company entered into a credit agreement with EXIM Bank, USA (March 1987) for a credit of US $ 20 millions, guaranteed by the Government of India. The Company had availed of the credit to the extent of US $ 16,381,183.12 to end of September 1992. The incidence of commitment fee (upto 30th September 1992) and

interest charges (31st October 1992) paid on the availment of EXIM credit worked out to Rs.55.22 lakhs and Rs.851.26 lakhs respectively.

Besides, the Company also obtained loans from DOE from time to time aggregating to RS.2119.13 lakhs as on 31st March 1992. This included Rs.1519.12 lakhs due towards repayment of loan instalments as on 31st March 1993. This apart, the outstanding liability towards interest and penal interest was of Rs.1435.49 lakhs as on 31.3.1993.

(b) Performance

The Unit, set up in July 1986, went into commercial production in February 1990 and the actual production and sales was always lower than the targets which themselves were lower than the manufacturing programme as shown below:

(Rs. in lakhs)

Year	Manufact-uring programme quantity	Revised Estimates				Actuals			
		Production		Sales		Production		Sales	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1989-90	50	9	1384	7	1548	4	821	3	700
1990-91	60	9	2534	7	2500	6	2216	6	1600
1991-92	70	6	1150	7	1706	4	920	5	1258

The poor performance was attributed to lack of demand for such large systems in the country . The Company stated that the rate of technology obsolescence in the electronic industry was very high. In that case, the fixation of progressively higher targets of phased manufacturing programme during the period 1987-88 to 1991-92 could not be considered to be rational.

(c) Profitability

The working of the Mainframe Computer unit for the first two years itself resulted in a loss of Rs.104 lakhs and Rs.782 lakhs respectively even leaving out

Rs.1313.63 lakhs being the unabsorbed Deferred Revenue Expenditure as on 31st March 1991. The accounts of Mainframe Computer Unit were maintained separately and at the year end were merged in the accounts of the Company; the working results of the Company upto 1990-91 included the losses suffered by MCU but during the subsequent years, the working results of the Unit were made out in a separate schedule.

In view of the poor performance of the Unit, the Company did not consider it possible to run it as a commercially viable proposition and to repay the loan on its own. The project was taken up apparently without a realistic assessment of the likely demand for the high value products.

(d) Future outlook

The Secretaries of DAE and DOE reviewed the position on 8th October 1991 and decided that ECIL should transfer the MCU with EXIM Bank loan and the current assets to DOE with effect from 1st April 1991. Accordingly, a resolution was also passed (October 1991) at the Annual General Meeting of ECIL authorising the Board to take all necessary steps for transfer of MCU to DOE or their nominee. Final action in this regard was awaited (March 1993).

Pending the final decision, the cumulative loss of Rs.4441.29 lakhs as at 31.3.1993 in respect of MCU was shown in the accounts of the Company as reimbursible by DOE, for which confirmation was awaited (March 1993).

During discussions (July 1993) CMD explained that by the time the project was completed and the Company was able to start production, the scene had changed considerably and the market for mainframe computers had started dwindling. It was also stated that the Company could sell only 28 machines (including two exported)

and there were no sales after 1991-92; however, by and large, the Company was able to achieve the quality in mainframe computers.

6.4 Exports: The Company made a beginning in the year 1985-86 in the export market by exporting its TV sets and software to some foreign countries. The export earnings during the last eight year period ended March 1993 amounted to Rs.417.34 lakhs while the Company's total expenditure in foreign exchange was Rs.34182.50 lakhs . The export earnings thus offset only 1.2% of the expenditure in foreign exchange.

6.5 Machine Utilisation

6.5(i) Monitoring of machine utilisation : The value of gross block of plant and machinery and electronic testing and measuring equipments as at 31st March 1993 was Rs.7331.01 lakhs registering an increase of 123% over the gross block of Rs.3292.94 lakhs as at 31st March 1988. The Company had not, however, evolved any system for ascertaining the utilisation of machinery and for analysing the reasons for idle hours, which would enable it to take corrective action for improvement of utilisation wherever called for.

The Management stated in August 1992, that the manufacturing process in ECIL was mainly labour oriented and only certain operations needed mechanisation; even there, the machine utilisation would not be continuous. Thus evaluation of machine utilisation in the Company along the lines of a machine intensive industry would be inappropriate. It was however stated by the Company that it had been decided to maintain such records in respect of the machines and equipments whose original cost was more than Rs.5 lakhs with effect from 1st April 1991. The decision,however, was yet (March 1993) to be implemented. The Company had also not been maintaining history cards in respect of various items of plant and machinery.

6.5(ii) Idle equipment : The Company imported Impregnation Equipment at a total cost of Rs.74.52 lakhs and commissioned it in April 1989. The equipment was guaranteed to produce 15 lakh pieces per annum of hermetically sealed type (HST) capacitors. The actual production was 6,38,169, 9,15,971, 9,97,678 and 10,48,435 pieces in the years 1989-90, 1990-91, 1991-92 and 1992-93 respectively. Inspite of under-utilisation of the existing equipment, the Company purchased (February 1990) another impregnation unit to meet anticipated demand at a total cost of Rs.87.06 lakhs which was commissioned in February 1991.

The Company stated (August 1991 and August 1992) that the impregnation (Pyrolysis) operation was very critical and therefore, to maintain continuity of operations in case of any break-down and also in view of the large future requirement of capacitors which were under development another machine was taken as stand-by.

During discussions in February 1994, DAE stated that both the machines were under use. It was further replied (March 1994) that while the existing machine was utilised to the extent of 83% during the period April 1993 to January 1994, the newly procured machine was utilised to the extent of 63% during the period June 1993 to January 1994. However, the quantity produced (12,83,708 pieces) was much less than even the guaranteed level of production of 15 lakh pieces for the existing one machine itself. This would also indicate that though the Company claimed a better utilisation of these two machines in 1993-94, the production was not commensurate with the percentage of utilisation.

6.6 Research and Development : Research and Development functions in the Company were decentralised and carried out in the various divisions, each having its own product range and relevant facilities. The divisional R&D activities are carried out under the guidance and monitoring of the Corporate Research and Development Wing. The main aim of the Wing is to achieve the goal of "self-reliance" in industrial electronics and also to increase the turnover and productivity.

The Company's R&D activities are of two types:

1. Schemes financed out of Company's own funds

2. Schemes financed out of grants from Government Departments such as DAE and DOE.

The table below indicates the estimated expenditure under Research and Development in the Company's VII Five Year Plan, and in the annual budgets vis-a-vis the actual expenditure and its percentage to the turnover, for the last six years ended March 1993:

(Rs. in lakhs)

Year	Expenditure as projected in VII Five Year Plan	Annual Budgeted Expenditure	Actual Revenue Expenditure	Turnover	Percentage of actual expenditure to turnover
1987-88	383	245	296.28	18070	1.64%
1988-89	408	172	222.88	21257	1.05%
1989-90	493	325	314.50	26502	1.19%
1990-91	--	729	334.77	25929	1.29%
1991-92	--	635	418.14	22141	1.89%
1992-93	--	924	559.25	28472	1.96%

The actual expenditure incurred by the Company on R&D as a percentage to turnover ranged between 1.05% and 1.96% during the six years ended 31st March 1993.

Particulars of some of R&D programmes/schemes taken up by the Company during 1987-90 are given below:

(Rupees in lakhs)

Name of Scheme/ programme	Financed by	Date of Commencement	Target date of completion	Actual date of completion	Estimated cost as per sanction	Actual cost	Audit comments
Access Control System	DAE	May 1987	December 1988	October 1989	5.45	12.34	The excess of Rs.6.89 lakhs met by the company. Not productionised for want of orders.
DAS for Lab use	DAE	July 1987	December 1988	Abandoned *(partly completed)	3.00	6.41*	Expenditure proved infructuous as the project abandoned half-way through due to low demand and stiff competition.
Continuous Automatic train Protection system	ECIL	--	--	--	--	29.00	System developed in anticipation of Railway orders which did not materialise. Expenditure rendered infructuous as the project was abandoned
Finger Print Work Station (Anguli)	ECIL					12.75	The system developed and proto-type manufactured in 1989-90 in anticipation of orders from Indian Police Department which did not materialise rendering the expenditure infructuous.

A review revealed the following:

- time over runs in development and completion of the items ;
- cost over runs;
- non-productionisation for want of orders;
- development of items but non-realisation of anticipated orders;
- infracturous expenditure due to abandonment of project half-way-through.

The Company stated in August 1992 that development of products in anticipation of orders was a business risk and that constant effort was made to maximise the production worthiness of R&D effort but in certain cases, the efforts might not bear fruit.

The contention of the Company was not in conformity with the COPU recommendations (March 1982) contained in its 32nd report - Seventh Lok Sabha, that the research activities in the Company were to be such as could be justified on

commercial considerations. Further, according to Government, the Board had also taken a decision that all design and development activities which involved significant investment would be undertaken by the Company only against grants specifically obtained for the purpose but as could be seen this was not adhered to. During discussions (July, 1993) the CMD stated that 76% of the turnover of Rs.640 crores during VII plan was attributed to the efforts of R&D. The position in its totality was however, not susceptible of verification in the absence of supporting documentation as was also confirmed by the Ministry (March 1994).

6.7 Material Management

6.7(i) Purchase Procedure : The Company had not yet prepared its Stores and Purchase Manual (March 1993). This was also commented upon in the Report of the Comptroller and Auditor General of India, Union Government (Commercial), 1982 Part-V (vide para 10.05).

6.7(ii) Instances of unnecessary/excess/advance procurement of materials

On the plea that the foreign manufacturer of original equipment was closing down the production of Analog Fax Machines, the Company procured thermal paper and opticalosslys much in excess of the actual requirements. In fact, the actual consumption was less than even the original projections made in the budget. As a result, thermal paper and opticalosslys valued at Rs. 9.92 lakhs and Rs.5.36 lakhs respectively rendered surplus were written off in the accounts for the year 1989-90.

DAE in its reply (December 1993) stated that these were purchased with a view to meet the anticipated demand from the customers, which however, did not materialise.

6.7(iii) Electronic Voting Machines (EVM)

Against the order of April 1983 from the Chief Election Commissioner for supply of 200 sets of Electronic Voting Machines,(EVMs) the Company imported in June 1983 raw materials required for manufacture of 1100 EVM sets at a total cost of Rs.17.94 lakhs. This apart, indigenous raw material valued at Rs.7.06 lakhs was also procured. The ordered quantity of 200 sets was supplied in February 1984 utilising raw materials valued at Rs.8.82 lakhs. The balance of the material, costing Rs.16.18 lakhs , which could not be used for subsequent orders on account of design changes etc., was written off in the accounts.

The Management in their reply of April 1991 stated that the EVMs were to be tested in one Lok Sabha seat which required a minimum of 1000 sets and as such the raw materials had to be procured accordingly. The contention of the Management was, however, not tenable for there existed a firm order only for 200 sets and a minimum requirement of 1000 sets for tests was neither supported by any evidence nor was it stipulated in the firm order for 200 sets. The Company pointed out (August 1992) that the execution of another order in 1989-90 for supply of 75,000 sets had resulted in favourable margins.

6.7(iv) Outstanding Advances

The Company placed (September 1988) a purchase order on an American firm for supply of 37 numbers of Crystal Control Oscillators and opened a letter of credit (LC) for Rs.13.91 lakhs representing 98% of the cost. The firm drew the funds in August 1989 without making the supplies. The Company stated in May 1991 that legal action was under process for realising the amount as the firm was not in existence now. It was not clear how the foreign supplier could draw funds from the LC without supplying the material.

6.7(v) Actual holdings vis-a-vis norms

The table below indicates the Company's norms determined in 1983 for holding inventories vis-a-vis the actual holding of different categories of inventories in terms of number of months production/value of production at cost and sales as at the close of last six years ended 31st March 1993:

Description of material	Company norms (1983)	Actuals 1987-88	1988-89	1989-90 (in months)	1990-91	1991-92	1992-93
1.Stock of raw material (in terms of months production requirement)	6 months	6.11	6.02	6.96	5.22	5.52	5.27
2.Stores, spares and packing material	Not fixed	18.25	19.84	9.53	15.38	18.04	15.99
3.Tools (including tools in use)	Not fixed	14.35	10.50	7.62	22.93	22.40	4.34
4.W.I.P. (including Mfgd .stock) in terms of number of months value of production at cost.	3 months value of production	1.73	1.86	1.56	1.79	1.29	1.20
5.Finished goods in terms of number of months sales	1 month sales	0.66	0.95	0.69	0.59	0.62	0.67

Inspite of BPE guidelines of September 1972 , the Company did not fix minimum, maximum and re-ordering levels of various inventories, on the plea that in the electronics industry, it was not practicable to fix such levels of inventory due to continuous change in the technology.

The Company had also not fixed the norms of consumption for various raw materials on a scientific basis to check the actual consumption periodically as required in the BPE guidelines of October 1967. The Company defended non-fixation of consumption norms with the plea that it would be possible to do so, only in an environment of standardised production and frozen technology. Should that be the

case, it is not clear how the Company could fix stock norms which in turn were dependent on consumption also.

6.7(vi) Non-moving and obsolete inventory

The Company as at 31st March 1993 held Rs.430 lakhs worth of non-moving inventory (not moved for over three years). Accumulation of non-moving inventory was attributed (August 1992) to the procurement of excess material over the requirements to take care of rejections, wastages etc.

According to the Company, the non-moving items also included insurance spares, the inclusion of which, however, was not in accordance with the instructions issued by BPE in its O.M dated 10.5.1974. Further neither the insurance items were seggregated as stiplulated by BPE nor the value thereof quantified.

6.7(vii) Write off of non-moving stores

The categories and year-wise details of obsolete/derated inventories written off by the Company during the six years period ended 1992-93 are given below:

(Rs. in lakhs)

	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
1. Finished stock, W.I.P and Manufactured stock	34.96	43.91	174.40	145.69	115.84	126.31
2. Raw Materials	39.43	52.20	126.69	128.64	144.26	150.17
3. Other stores & Spares	95.66	118.30	232.10	172.11	140.63	125.76
Total	170.05	214.41	533.19	446.44	400.73	402.24

A further analysis of Item No.1 above revealed the following:

1989-90 : Out of Rs.174.40 lakhs written off, the CSPG accounted for Rs.122.24 lakhs (70.18%).

1990-91 : Out of Rs.145.69 lakhs written off, the IG accounted for Rs.66.09 lakhs (45.36%) and the CMG accounted for Rs.75.34 lakhs (51.71%).

The Management stated in August 1991 that in the electronics industry, obsolescence was very high not only in India but also abroad. It was further stated that the percentage of write off was more or less the same when compared to other electronics manufacturers in India with reference to their turnover.

Though the Company had been writing off its obsolete/derated non-moving inventory, no proper documentation showing details as to their existence, items with their values disposed of on year to year basis was maintained for exercise of necessary controls.

During discussion the CMD admitted that the disposal activity of non-moving/slow-moving and obsolete stores was not progressing at the desired pace.

6.7(viii) Physical verification

The Company follows a perpetual inventory control system for physical verification of inventory items such as stores, spares, raw materials etc. The shortages/excesses noticed during the physical verification were investigated and the net difference in the value was adjusted to the consumption account. The year-wise break up of such adjustments by debit to consumption account were as follows:

Year	Net shortage (Rs. in lakhs)
1987-88	6.34
1988-89	15.07
1989-90	34.22
1990-91	15.24
1991-92	12.81
1992-93	21.95

The net adjustments made during the period subsequent to 1987-88 were substantial and touched Rs. 34.22 lakhs in 1989-90. The Company in its reply of August 1991 stated that these were not exactly real shortages but clerical mistakes such as unaccounted consumption due to errors accumulated over a period of time.

6.8 Manpower Analysis

6.8(i) Size of work force

The details of work force at the close of each year for the six years ended 31st March 1993 are given below:

Work Force	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
a) Direct						
i) Executive	2090	2174	2576	2578	2634	2747
ii)Non-Executive	4385	4370	3980	3968	3879	3657
b) Indirect						
i) Executive	282	294	338	337	383	347
ii)Non-Executive	1017	1025	985	1009	978	902
Total	7774	7863	7879	7892	7874	7653

Note: The direct work force includes those employed in various divisions like Purchase, Marketing, Production Planning and Control, Quality Control etc.

6.8(ii) Surplus Manpower

According to DAE, with the fast changes in technology, the labour intensiveness of the electronic industry was coming down drastically so it was felt that the Company could still manage the existing level of operations by bringing down the strength by 1,000 persons. This could be deemed to be the surplus work force. DAE stated that in order to handle the problem of surplus manpower the following strategies were being adopted:

- Re-deployment through re-training.
- Voluntary Retirement Scheme.

Accordingly, two types of training programmes -one on software engineering and the other on personal computer hardware were launched. The Voluntary Retirement Scheme was revived on 1st January 1993 and was still continuing (March 1994). So far, 222 employees had taken voluntary retirement. With the voluntary retirements and normal separations the staff strength stands reduced to 7451 as on 1st January, 1994 as against 7874 as on 1st December, 1992.

6.8.(iii) Executive-Non-Executive Ratio

The ratio of Executives and Non-Executives during the six years ended 31st March 1993 was as follows:

Year	Executives	Non-Executives	Ratio
1987-88	2372	5402	1:2.28
1988-89	2468	5395	1:2.19
1989-90	2914	4965	1:1.70
1990-91	2915	4977	1:1.71
1991-92	3017	4857	1:1.61
1992-93	3094	4559	1:1.47

The data indicated disproportionate placement of Executives vis-a-vis Non-Executives. The Company stated in July 1992 that it had been following a method of

inducting staff at the initial level of officers and workers and subsequently they were elevated in the process of a career promotion system. This implied that upgradation was not based on the actual needs or with due consideration of its impact on the cost of production. No norms had been fixed (December 1992) for the ratio between Executives and Non-Executives.

6.8.(iv) Utilisation of Manpower

The table below indicates the man-hours available, utilised and percentage of utilisation during the last six years ended 31st March 1993.

	(Manhours in lakhs)					
	1987-88	1988-89	1989-90*	1990-91	1991-92	1992-93
1.Total available hours	43.10	43.17	36.35	41.99	41.13	40.93
2.Utilised hours	31.69	28.72	25.06	30.22	29.44	30.33
3.Leave, etc	4.77	6.65	5.83	6.22	7.01	5.84
4.Idle hours:	6.64	7.80	5.46	5.55	4.68	4.76
PERCENTAGE OF						
i) Utilised hours to total available hours	73.53%	66.53%	68.94%	71.97%	71.58%	74.10%
ii) Leave,etc to total available hours	11.07%	15.40%	16.04%	14.81%	17.04%	14.27%
iii) Idle hours to total available hours	15.40%	18.07%	15.02%	13.22%	11.38%	11.63%

(*) excludes CMG - data not available.

It was observed that:

- Reduction in available hours was mainly due to promotion of some of the workers to Executive cadre. No time cards were being maintained for the Executives although some of them continued to be engaged in production activity.

- Percentage of utilised hours to total available hours had been coming down apparently due to absence on leave/compensatory-off and idle time.

According to DAE, the low rate of utilisation was due to lack of sufficient firm orders, stiff competition for products and lack of a captive market unlike other PSUs.

The Company however, did not analyse the man-power utilisation with a view to optimising it.

6.8 (v) Employees' Incentive Schemes

The objectives of introducing different incentive schemes included -

- providing better flow of working funds;

- bringing-up the ratio of value added to salary to 3;

- enforcement of inventory control; and

- effective realisation of Sundry Debtors.

The position of relevant items at the end of 1985-86 and at the end of 1992-93 is compared in the following table:

(Rupees in lakhs)

	1985-86	1992-93
Inventories	6,425.74	12,571.69
Cash Credit	1,058.38	4,154.82
GOI etc. loans for working capital	492.00	6,874.53
Sundry Debtors	2,934.46	11,426.50
Percentage of Sundry Debtors to Sales	23.17%	39.58%
Sundry Debtors in terms of months sales(in months)	2.78	4.75
Value added per Rupee of wages (in rupees)	2.24	1.97

It would be seen that over the period from 1985-86 to 1992-93:

- the value of inventory holdings had substantially increased (by 95.65%),
- the borrowings viz. Cash Credit and GOI loans for working capital requirements registered an increase of 611.40%,
- the growth in Debtors was considerable; and
- the value added per rupee of wage had fallen below the level of 1985-86, which itself was less than the 3 envisaged.

It could thus be seen that the implementation of different incentive schemes at a sizeable expenditure of Rs. 1,230.64 lakhs (for the eight years ended 1992-93) did not yield the desired results thus defeating the very purpose of the schemes, as well as the guidelines issued by BPE in September,1984 directing the Ministries to make the scheme scientific and result oriented.

According to the Management (August 1992) the objectives indicate the direction in which the Company should move forward and the goals might not be

factually realisable. The Board desired in February 1992 that the Management should come out with a revised production incentive scheme at an early date which was yet to be finalised (January, 1993).

CHAPTER 7

SALES PERFORMANCE

7.1 Sales figures

The table below shows the budget/revised estimates of sales vis-a-vis the actuals for the last six years ended 31st March 1993 (excluding MCU):

Year	Budget Estimates	Revised Estimates	Actuals	Percentage of Actuals to	
				Budget Estimates	Revised Estimates
	(------Rupees in lakhs------)			%	%
1987-88	16956	16160	15889	93.71	98.32
1988-89	18549	19906	18788	101.29	94.38
1989-90	23118	25886	23694	102.49	91.53
1990-91	26470	25405	21752	82.18	85.62
1991-92	27281	24924	19539	71.62	78.39
1992-93	28358	26998	24942	87.95	92.38

(Figures exclude Excise Duty and Sales Tax)

The actual achievement of sales fell short of the revised estimates in all the six years. The Company had not analysed the reasons for shortfall.

7.2 Groupwise sales performance

The groupwise sales performance is given in Annexure-III. The main features are:

Instruments Group: Even with 84% and 85.47% achievement, this Group suffered losses in the years 1991-92 and 1992-93.

Components and Special Products Group: This Group suffered heavy losses in all the years. Despite an additional capital investment of Rs. 756.63 lakhs, during the Seventh Five Year Plan period (1985-90), the performance of the Group remained unsatisfactory and the additional investment did not help in the retrieval of the situation. DAE stated in March, 1994 that the investment made included the facilities created for manufacture of PCBs intended to meet the inhouse requirements; it is however seen that the investment made on that account was only Rs. 179 lakhs. Further, in the system followed by the Company, the internal transfers were also treated as sales of the relevant Group and in the process such transfers also stand accounted for. The Company gave (May 1991) the following reasons for the poor performance of the Group:

- fall in prices in the market in respect of catalogue items;
- increase in cost of raw material imports;
- long gestation period of development and production clearances and
- pricing strategy to keep resources engaged.

Computers Group: During the three years period ended 1991-92, the operation of the Group resulted in heavy losses. Further, in 1987-88 with the sales performance equivalent to 94% of the Revised Estimates, the profit earned was 36% of the estimated profit. On the other hand, for an actual performance of 97% in 1989-90 it suffered a loss equivalent to 318% of the Revised Estimates. On a specific query on the low margins, the Management explained (March 1989) that in order not to lose orders, Computer Systems were sold as long as there was no cash loss even though there was no profit. The Management also stated (November 1989) that the poor performance of the Group in 1989-90 was mainly due to poor materials management and production planning resulting in delays in receipt of materials and customer acceptance of finished goods.

Consumer Electronics Group: With the exception of the year 1987-88, the Group lost heavily in all the years with fall in the actual performance also. The following factors contributed to the decline in the performance of the group, which to a certain extent could be considered as avoidable:

- product pricing and discount structure was not in line with the realities of the market;
- the Group could not come out with right products at right places and in right time;
- competition from other sources and indifferent after sales service;
- the sales promotion, including show-rooms, advertising, product presentation etc., were not up to the mark;
- the aesthetics of the products had been poor and the quality of the sets had been varying;
- the Group had limited product range. Neither were there many models to choose from nor did it have allied products; and
- the Research and Development was inadequate to come out with new features to meet the changing tastes of the customers and stand the competition in the market and counter their aggressive marketing strategy effectively.

Communication Systems Group: Though the sales performance of this Group had continuously resulted in profits yet the level of profit had come down in 1990-91 and the performance in 1991-92 resulted in a loss of Rs. 230 lakhs as against an anticipated profit of Rs. 61 lakhs.

Though the operating results of various groups (except CSG upto 1990-91 & MSG) were thus erratic, still the Company did not analyse the reasons and specifically report to the Board.

7.3 High incidence of liquidated damages

The Company had been incurring liquidated damages due to delays in execution of sales orders. The liability on this account for the five years ended 1992-93 amounted to Rs.659.30 lakhs.

The Company stated (November, 1991) that the reasons for the incidence of liquidated damages were:

- procedural delays in cumbersome pre-despatch inspection by the customers involving considerable time;
- initiation of procurement action only on receipt of the confirmed purchase order from the customer and not based on letter of intent;
- receipt of advance from the customers, also a parameter for reckoning the delivery period;
- time taken to fulfil procedural formalities; and
- inter-action with Government agencies like DGTD, Chief Controller of Imports and Exports, Department of Telecommunications etc., for obtaining import licence.

The Company further contended, in November 1992, that adequate cushions were built into quotations to take care of liquidated damages. This was however, not susceptible of verification.

The Company could have avoided/minimised payment of liquidated damages by offering a realistic delivery schedule taking into account the time actually required. The Company however stated that efforts were being made to minimise the incidence of liquidated damages.

7.4 Pricing Policy

The Company did not have any specific pricing policy, keeping in view all the relevant factors, for its products. It stated (November 1991) that most of the products/projects were priced on contribution theory rather than on cost plus basis since the competition was severe in electronic products.

7.5 Marketing

The Company did not have a suitable marketing cadre at corporate level to resort to aggressive marketing to push the Company's products. The Company recognised (February 1991) that marketing was a weak area resulting in a depleting order book position, lack of market knowledge and inability to utilise synergy that could be generated as a result of availability of diverse technical skills in the fields of computers, controls and communications at one place.

During discussions (July 1993) the Chairman and Managing Director agreed that the Company's weakness lay in inadequate business orientation and marketing, which lacked an agressive thrust. He stated that plans were on to improve the order book position, toning up of marketing, increased interaction with customers, etc.

7.6 Order Book Position

The following table indicates the year-wise actual sales and the order book position for the last six years ended 31st March 1993.

	Actual Sales year during the year (----Rupees in lakhs----)	Order Book* position at the end of the year
1987-88	15,889	13,347
1988-89	18,788	16,985
1989-90	23,694	14,982
1990-91	21,752	15,088
1991-92	19,539	25,701
1992-93	24,942	16,936

* due for execution in the immediate succeeding year.

In all the six years, there was, at the end of each year, a huge backlog of orders which could adversely affect the delivery schedules of existing orders and receipt of future orders. One of the reasons for heavy back-log of orders was the low production performance compared to Revised Estimates in 1989-90 to 1992-93 and continued lower capacity utilisation .

7.7 Customer composition

The Company's customer composition mainly consisted of Departments connected with Defence, nuclear technololgy, telecommunications, electronics, the Railways, Public Sector Undertakings etc., apart from the general public for its consumer electronic items.

7.8 Sector-wise sales

An analysis of sector-wise and year-wise sales during the period 1987-88 to 1992-93 in respect of Government Departments, Public Sector Undertakings and others including private parties showed the following position:

A: Sales-Rs.in lakhs, B: % to total sales

	1987-88		1988-89		1989-90		1990-91		1991-92		1992-93	
	A	B	A	B	A	B	A	B	A	B	A	B
Govt. Deptts.	3372	18	13035	58	17897	66	13978	53	11707	53	18201	64
PSUs	8246	45	3015	13	3962	14	6345	24	5325	24	5409	19
Others including Private parties	6005	33	5716	26	4714	17	5200	20	4887	22	4629	16
Deptl. transfers Exports/ Deemed exports	795	4	606	3	716	3	689	3	287	1	368	1

The sales in respect of PSUs and others have been coming down in the years 1991-92 and 1992-93. It indicated that the Company was mainly dependant on Government Departments for its sales.

7.9 Book Debts

In spite of stipulating strict terms of payment, debtors had been increasing (and in certain cases realisation was pending even for three years or more) as shown below:

As on	Considered			Sales including services*	Percentage of Debtors to Sales
	Good	Doubtful	Total		
	(Rupees in lakhs)				
31-3-1988	5423.85	271.05	5694.90	17692.86	32.19%
31-3-1989	6388.19	147.41	6535.60	21806.35	29.97%
31-3-1990	9443.10	158.00	9601.10	26632.70	36.05%
31-3-1991	11136.97	228.71	11365.68	25645.73	44.32%
31-3-1992	10857.26	172.90	11030.16	23272.01@	47.40%
31-3-1993	11157.04	269.47	11426.51	28633.87	39.91%

* excluding inter-departmental transfers but including Excise Duty and Sales Tax.

@ includes sales relating to MCU

Sector-wise and age-wise details of Sundry Debtors pending realisation as at 31st March 1993 were:

	Government Departments & undertakings (Rs.in lakhs)	Others
Outstanding for one year but less than two years	1379.72	145.10
Outstanding for two years but less than three years	561.11	33.63
Outstanding for three years and more	400.29	62.95

Sundry Debtors in terms of months sales had gone up steeply and were equivalent to 4.79 months sales in 1992-93 as against 3.86 in 1987-88, exceeding the norm of 2 months sales fixed by the Board.

The Management stated (November 1991) that the position of Sundry Debtors was reviewed periodically and follow-up action was taken by the group marketing cells. The position brought out however, indicated that the effective action was wanting.

CHAPTER 8

INTERNAL AUDIT

The Internal Audit Department (IAD) started functioning in the Company from January 1980. The main objectives of Internal Audit were spelt out in the IAD Manual issued in June 1986. As per the Bureau of Public Enterprises guidelines (September 1968) the functions of Internal Audit should include a critical review of the systems, procedures and operations as a whole rather than mere accounting work.

It was however observed that the reports submitted by Internal Audit did not indicate whether appraisals of the systems, procedures and operations of the Company as a whole had been conducted.

Apart from its own Internal Audit Department, the Company engaged on payment from 1986-87, the services of Chartered Accountants also, for internal audit. Inspite of this, the Statutory Auditors in their reports on the accounts of the Company for the years 1988-89 to 1992-93 had commented that the scope and coverage of the internal audit system in the Company was not commensurate with the size of the Company and nature of its business.

DAE stated (February 1994) that a separate cell was being set up to make the internal audit system more effective.

CHAPTER 9

OTHER TOPICS OF INTEREST

Unfruitful Investment on acquisition of land

With a view to establish a manufacturing unit for production of VCRs and TV sets, the Company acquired in February 1984 land measuring 25.10 acres in the Industrial Estate at Tirupathi at a cost of Rs. 18.56 lakhs from Andhra Pradesh Industrial Infrastructure Corporation (APIIC). The Company, however, could not establish the manufacturing unit (March 1993) due to a slump in the market for TV sets and change in Government policy as regards grant of industrial licences for manufacturing VCR/VCPs. Further, according to its own projections of sale of TV sets no significant improvement was also anticipated in the next few years by the Company. The terms and conditions of the agreement with APIIC provided that if the land was no longer required for the intended purpose it was to be restored back to the APIIC and in no event the Company could claim refund of the amount already paid in this regard which was to be treated as payment towards rentals. As the Company was not able to utilise (March 1993) the land acquired and the prospects of utilisation were also remote, the investment of Rs. 18.56 lakhs on the land (which is not the absolute property of the Company) proved to be unfruitful and resulted in a loss of interest amounting to Rs. 27.56 lakhs (at 16.5% per annum for nine years) on the idle investment.

When asked whether the Company had explored the possibility of expanding its manufacturing activities at Hyderabad/Tirupathi where it had acquired substantial land instead of locating an altogether new unit at Aurangabad, the CMD replied (July 1993) that it all depended upon the demand and supply position and that the Tirupathi unit was intended to cater to the Madras market.

Further DAE stated in December, 1993 that the decision to establish a unit was a business proposition for augmentation of capacities and expansion and therefore it would be difficult to re-acquire the land at the appropriate time, if it were to be surrendered.

New Delhi
The -5 MAY 1995

(RAMESH CHANDRA)
Deputy Comptroller and Auditor General-
cum-Chairman, Audit Board

Countersigned

New Delhi
The -8 MAY 1995

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

ANNEXURE-I

GLASS OF PRODUCTS MANUFACTURED	UNITS	1987-88			1988-89			1989-90			1990-91			1991-92			1992-93		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
INSTRUMENTS GROUP																			
1. Instruments and Systems	Nos.	1500	1429	95.27	1600	1230	76.88	1800	1117	62.06	1850	544	29.41	1754	1348	76.85	1850	1332	72
2. Electronic Calculators	Nos.	--	149	---	---	10	---	--	--	--	--	--	--	--	--	--	--	--	--
3. 25 MH2 Rectangular CRTs	Nos.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4. 50-100 Rectangular CRTs	Nos.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5. CCtv and other imaging systems based in on X-ray, infrared, ultra-sonic etc. technique	Nos. Rs. lakhs	650	567.08	87.24	750	854.35	113.91	850	842	99.06	1500	1209.41	80.63	1200	1143	95.25	1200	1107.15	92.26
6. Electronic Voting Machines.	Nos.	--	--	--	--	--	--	75000	75000	100	--	--	--	--	--	--	--	--	--

COMPONENTS AND SPECIAL PRODUCTS GROUP																										
7. Passive components	Nos.		1030000	728931	70.77	530000	885152	57.85	1780000	1093968	61.46	1780000	1500463	84.30		2280000	1174962	51.53		1832000	1247988	68.12				
8. Nickel Cadmium Cells	Nos.		30000	40204	134.01	30000	7260	24.20	30000	2874	9.58	30000	19101	63.67		30000	2621	8.74		30000	1889	6.30				
9. Semi-conductor devices	Nos.		8000000	751262	9.39	8000000	1264888	15.81	8000000	1354775	16.93	8000000	1209883	15.12		8000000	1225405	15.32		2000000	1417231	70.86				
10.Silicon single crystals	Kgs.		–	–	–	–	–	–	–	–	–	–	–	–		–	–	–		–	–	–				
11.Glass-to metal Seals	Nos.		2000000		160.950	8.05	2000000	–	Nil	–	–	–	–	–		–	–	–		–	–	–	–	–		
12.Technical Ceramic components for electronic, electrical, communication and defence industries.	Tonnes.		15	12	80.00	15	15	100	20	11.69	58.45	20	18	90		20	18	90.00		50	50	100				
13.Thick file devices.	Nos.	400000	174833	43.71		500000	315615	63.12	600000	606915	101.15	800000	276508	34.56	800000		530545	66.32	1000000		921693	92.17				
14.Printed circuit Boards	Sq. Mts.		3500	1184.12	33.83	4000	922.63	23.07	4000	600.19	15.00	4000	456.11	11.40		4000	335	8.38		4000	584.54	14.61				
15.Electronic Tuners	Nos.		–	–	–	–	–	–	–	3050	–	–	1950	–		–	–	–		–	–	–				
16.Micro-Wave	Rs.		40	24.39		60.98	40	12.43	31.08	40	6.32	15.80	40	43.59		108.98	40	48.69		121.73	65	44.32	68.			

16.Micro-Wave Instruments and components	Rs. in lakhs	40	24.39		60.98	40		12.43	31.08	40	6.32	15.80	40	43.59	108.98	40	48.69	121.73	65	44.32	68.
17.R.F.Selector with accessories	Rs. in lakhs	100	155	155	100	58	58	100	94	94	100	21.72	21.72	100	---	--	100	55.50	55.50		
18.Electronic equipment of special kind of Defence	Nos.	20030	767438.31		20030	6158	30.74	20140	6685	33.19	18110	7152	39.49	18078	4198	23.22	30125	10671	35.42		
CONTROL SYSTEMS GROUP.																					
19.Data acquisition systems	Rs. in lakhs	175	195.04	111.45	300	2.36	0.79	300	62.74	20.91	300	205.09	68.36	300	471.18	157.06	300	692.59	230.86		
20.Servo components, systems and packages		115	58.44	50.82	115	131.29	114.17	115	125.87	109.45	115	75.79	65.90	115	107.37	93.37	115	382.8	332.95		
21.Recording Systems	Nos.	200	27	13.50	200	60	30.00	200	58	29.00	200	87	43.50	200	70	35.00	20	--	--		
22.Railway signalling and protection systems	Nos.	200	--	Nil	200	--	Nil	200	--	Nil	200	--	---	200	--	--	200	--	--		

23.Programmable controller system for performing logic and other functions for industrial applications alongwith accessories like programming panel display units etc. with micro processor and non micro processor based systems.	Nos	100	--	Nil	100	--	Nil	100	--	Nil	100	--	Nil	100	--	--	100	--	--
24.Tele Supervisory systems	Rs. in lakhs	300	29	9.66	300	184.85	61.62	300	456.33	152.11	300	106.04	35.35	300	373.67	124.56	300	312.28	104.09
25.Nuclear power plant instrumentation control instrumentation for process industries	Rs. in lakhs	1000	1162.19	116.22	1200	1540.50	128.38	1600	1322.10	82.63	1600	880.64	55.04	1600	822.19	51.39	1600	1722.80	107.68
26.Electronic automation packages for steam turbines for generators (EAST)	"	600	714.77	119.13	600	507.08	84.51	600	631.35	105.23	600	963.04	160.50	600	828.58	138.10	600	690.43	115.07
27.Computer based electrical load	"	--	--	--	--	--	--	1000	--	Nil	1000	288.83	28.88	1000	54.30	5.43	1000	--	--

despatch system																				
28.Self powered Newtron Detector	Nos.	--	--	--	--	--	--	--	--	--	--	209	--	--	--	--	--	--	--	
29.Turbine Automation systems	Rs. in lakhs	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
COMPUTER GROUP.																				
30.Digital Computer systems.	Nos.	250	85	34.00	250	45	18.00	250	136	54.40	250	173	69.20	250	158	63.20	250	66	26.40	
31.SPC Telex exchange equipment including primary exchanges, concentrators, concentrated exchanges, time division multiplexers and associated hardware and software	lines	12000	764	363.69	12000	7775	64.79	12000	3282	27.35	12000	3800	31.66	12000	2700	22.50	12000	5320	44.33	
CONSUMER ELECTRONICS GROUP																				
32.Television sets	Nos.	25000	69066		276.26	25000	83227	332.91	25000	49243	196.97	12000	39750	331.25	12000	27641	230.34	12000	28446	237
33.Colour Television sets	Nos.	60000	37483		62.47	60000	36080	60.13	60000	20341	33.90	30000	17838	59.46	30000	14738	49.13	30000	14725	49.
34.Colour Projection TVs.	Nos.	--	--	--	--	3	--	100	63	63	100	38	38	100	20	20.00	100	20	20	

COMMUNICATION
SYSTEMS GROUP.

35.Two way wireless communication sets(HF,VHF to microwave ranges)	Nos.	5000	536	10.72	2000	155	7.75	2000	281	14.05	2000	164	8.20	2000	178	8.90	200	229	114.5
36.Microwave antennae to satellite communications	Nos.	50	3	6.00	50	2	4.00	50	6	12.00	50	19	38.00	50	21	42.00	50	14	28
37.Antennae with feed(of various sizes)	Nos.	300	82	27.33	350	194	55.43	350	245	70.0	350	283	80.86	350	277	79.14	600	270	45
38.High power amplifier systems	Nos.	100	1	1.00	100	1	1.00	150	49	32.67	150	58	38.67	100	3	3.00	50	12	24
39.Facsimile transreceivers	Nos.	500	100	20.00	500	45	9.00	2000	232	11.60	2000	983	49.15	2000	558	27.90	2000	259	12.95
40.Frequency modulated anternac	Nos.	30	--	Nil	60	--	Nil	60	94	156.67	60	--	Nil	60	2	3.33	30	3 10	
41.Analog/ Digital Microwave communication systems	Syste ems	--	--	--	--	--	--	100	--	Nil	100	--	Nil	100	194.90	194.90	50	7.27	14.54
42.Digital multiplex equipment including	Termi nals	500	--	Nil	500	220	44	500	114	22.80	500	2	0.40	500	--	--	500	25	5

signalling convertor.																		
43.Transistorised village TV receiving sets with front end convertors & Antennae	Nos.	5000	6	0.12	5000	415	8.30	5000	338	6.76	5000	19	0.38	5000	81	1.62	700	188	26.86

Note:- (i) 'A' indicates Installed capacity.

(ii) 'B' indicates Actual Production.

(iii) C' indicates Percentage of Actual Production to Installed capactiy.

(iv) CEG production in respect of item 32,33 & 34 includes bought-out items also.

Annexure-II

Group wise Production Performance

(Rs. in Lakhs)

Group	1987-88					1988-89					1989-90				
	BE	RE	Actuals	% of actuals to BE	RE	BE	RE	Actuals	% of actuals to BE	RE	BE	RE	Actuals	% of actuals to BE	RE
IG	1570	1655	1791	114	108	1785	1850	2124	119	115	2050	5725	5884	287	103
CSPG	1345	1319	1326	99	101	1546	1551	1208	78	78	1812	1410	935	52	66
CSG	2945	2802	2563	87	91	3281	2762	2890	88	105	2990	3000	3027	101	101
CMG	4920	4255	4123	84	97	4645	4800	4749	102	99	5700	5250	5280	93	101
CEG	3610	3650	4180	116	115	4064	4700	4903	121	104	5100	5100	2806	55	55
CNSG	2467	2283	2714	110	119	2723	4010	4353	160	109	4355	4360	5183	119	119
MSG	180	180	182	101	101	188	160	168	89	105	185	192	173	94	90
	17037	16144	16879	99	105	18232	19833	20395	112	103	22192	25037	23288	105	93

Group	1990-91					1991-92					1992-93				
	BE	RE	Actuals	% of actuals to BE	RE	BE	RE	Actuals to	% of actuals BE	RE	BE	RE uals to	Actuals BE	% of actuals RE	
IG	2480	2500	2635	106	105	2985	2940	2523	85	86	3300	3000	2690	81	90
CSPG	1900	1710	1255	66	73	2065	1605	1018	49	63	2210	2210	2199	99	99
CSG	3250	3350	3439	106	103	3700	3350	3063	83	91	3700	4000	4216	114	105
CMG	6800	6665	5515	81	83	7300	6477	5423	74	84	7344	7000	7608	104	109
CEG	5600	4800	2712	48	57	5680	4400	2760	49	63	6200	5000	2783	45	56
CNSG	5204	5330	5714	110	107	4801	4685	3647	76	78	5135	4962	5145	100	104
MSG	350	360	390	111	108	400	425	375	94	88	400	490	545	136	111
	25584	24715	21660	85	88	26931	23882	18809	70	79	28319	26662	25186	89	94

Annexure-III

The group-wise sales performance

Year	Instrument Group		Components & Spl product Group		Control Systems Group		Computer Group	
	Sale	Profit	Sale	Profit	Sale	Profit	Sale	Profit
1987-88								
A	1635	51	1271	48	2756	237	4290	391
B	1718	123.88	1159	(-)16.25	2578	206.83	4043	140.51
C	105.08	242.90	91.19	--	93.54	87.27	94.24	35.94
1988-89								
A	1900	49	1566	37	2655	90	5000	249
B	2032	10.68	1027	(-)381.38	2683	257.33	4367	100.63
C	106.95	21.80	65.58	--	101.05	285.92	87.34	40.41
1989-90								
A	5775	450	1575	(-)224	3250	35	5150	(-)123
B	5855	1285	1140	(-)594	3120	59	4989	(-)391
C	101.38	285.55	72.38	265.18	96	168.57	96.87	317.89
1990-91								
A	2700	75	1800	(-)72	3400	282	6720	(-)165
B	2857	381	1214	(-)442	3474	161	5498	(-)174
C	105.81	508	67.44	613.88	102.18	57.09	81.82	105.45

1991-92								
A	2900	229	1655	(-)376	3195	314	6890	2
B	2436	(-)182	980	(-)957	3056	(-)401	5545	(-)539
C	84	--	59.21	254.52	95.65	--	80.48	--
1992-93								
A	3000	2	2163	(-)301	4157	159	7300	13
B	2564	(-)269	2019	(-)265	4161	159	7584	590
C	85.47	--	93.34	88.04	100.09	100	103.89	4538.46

Note:

A = Revised Estimates (Rs. in lakhs)
B = Actuals (Rs. in lakhs)
C = Percentage of Actuals to Revised Estimates.

Annexure-III Contd.

Year	Consumer Electronics Group		Communication Systems Group		Military Systems Group		Total	
	Sale	Profit	Sale	Profit	Sale	Profit	Sale	Profit
1987-88								
A	3650	97	2378	96	180	56	16160	976
B	3950	141.60	2259	275.51	182	104.85	15889	977
C	108.22	145.98	95	286.99	101.11	187.23	98.32	100.10
1988-89								
A	4700	178	3925	462	160	29	19906	1094
B	4300	(-)179.61	4210	436.28	169	73.91	18788	318
C	91.49	--	107.26	94.43	105.63	254.86	94.38	29.07
1989-90								
A	5400	(-)110	4544	471	192	35	25886	534
B	3193	(-)505	5224	596	173	46	23694	496
C	59.13	459.09	114.96	126.54	90.10	131.43	91.53	92.88
1990-91								
A	4800	(-)257	5625	258	360	55	25405	176
B	2822	(-)552	5497	168	390	203	21752	(-)255
C	58.79	214.79	97.72	65.12	108.33	369.09	85.62	--

1991-92								
A	4400	(-)508	5459	61	425	52	24924	(-)226
B	2813	(-)551	4334	(-)230	375	102	19539	(-)2758
C	63.93	108.46	79.39	--	88.24	196.15	78.39	1220.35
1992-93								
A	5000	(-)476	4888	130	490	107	26998	(-)366
B	2799	(-)770	5270	416	545	243	24942	(+)104
C	55.98	161.76	107.82	320	111.22	227.1	92.38	--

Note:

A = Revised Estimates (Rs. in lakhs)
B = Actuals (Rs. in lakhs)
C = Percentage of Actuals to Revised Estimates.