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भारत इलेक्ट्रॉनिक्स
BHARAT ELECTRONICS

Annual Report 1999-2000

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BHARAT ELECTRONICS LIMITED

Quality Technology Innovation

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Corporate Mission and Objectives

Mission

To be the market leader in Defence Electronics and in other chosen fields and products

Objectives

- To become a customer-driven company supplying quality products at competitive prices at the expected time and providing excellent customer support.
- To achieve growth in the operations commensurate with the growth of professional electronics industry in the country.
- To generate internal resources for financing the investments required for modernisation, expansion and growth for ensuring a fair return to the investor.
- To strive for self-reliance by indigenisation of critical materials and components in order to meet the nation's strategic needs.
- To retain the technological leadership of the company in Defence and other chosen fields of professional electronics through in-house Research and Development as well as through Collaboration/Cooperation with Defence/National Research Laboratories, International Companies, Universities and Academic Institutions.
- To progressively increase overseas sales of its products and services.
- To create an organisational culture which encourages members of the organisation to realise their full potential through continuous learning on the job and through other HRD initiatives.

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Board of Directors

(As on 1-8-2000)

Dr. V.K. Koshy	-	*Chairman & Managing Director*
Shri V. Ammineedu	-	Director (Personnel)
Shri Abhijit Basu Joint Secretary & Addl. Financial Adviser, Ministry of Defence	-	Director
Shri V.N. Gaur Joint Secretary (SY) Ministry of Defence	-	*Director*
Lt. Gen. Prakash Gokarn, PVSM, AVSM Signal Officer-in-Chief, Indian Army	-	Director
Air Marshal T.R. Janakiraman, PVSM, AVSM *Air Officer-inCharge, Maintenance,* Indian Air Force	-	Director
Shri S.C. Khanna	-	Director (Commercial & Management Services)
Vice Admiral A.S. Krishnan, PVSM, AVSM, VSM Chief of Material, Indian Navy	-	Director
Shri P. Bhaskara Naidu	-	Director (Finance)
Dr. K.G. Narayanan Director, Aeronautical Development Establishment	-	Director
Shri V.V. Gangadhara Rao	-	Executive Director (Other Units)
Shri Y. Gopala Rao	-	Executive Director (Bangalore Complex)
Col. H.S. Shankar, VSM (Retd.)	-	Director (Research & Development)

Principal Executives

CORPORATE OFFICE

General Managers

Bhadoria H.S.
Rao C.J.
Shrivastav A.K.
Subramanian R.S.

Company Secretary
Nagesh K.S.

UNITS
General Managers/Unit Heads

Bangalore
Asirvatham V.G.V.
Eswara Rao M.
Krishna Rao M.
Lakshmanaprasad S.
Prem Kumar B.R.
Ramachandra Murthy R.
Ranganathan R.
Simha N.N
Srinivasan V.B.

Chennai
Mohana Rao A.

Hyderabad
Chandrasekharan N.

Machilipatnam
Babu Rao K.

Pune
Prasad T.R.

Taloja
Satyanarayana Chetty S.

Ghaziabad
Anandam Ch.

Kotdwara
Mehta S.K.

Panchkula
Sastry P.R.K.L.N.

CRL
Ramakrishna H.
Chief Scientist

BANKERS

State Bank of India
State Bank of Hyderabad
State Bank of Patiala
State Bank of Travancore
State Bank of Mysore
State Bank of Bikaner & Jaipur
HDFC Bank
Canara Bank
Syndicate Bank
Vijaya Bank
Bank of Baroda
Andhra Bank

AUDITORS

Statutory Auditors
M/s K.P. Rao & Company

Branch Auditors
M/s Chandiok & Guliani,
M/s P.G. Joshi & Company,
M/s Siva Krishna and Narayan

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The Past Decade

(Rs. in millions)

Particulars	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
Sales & Services	7239.2	7169.4	7737.7	8506.5	9346.1	10689.8	12262.4	12613.0	11988.7	14941.4
Value of Production	7002.4	7070.8	8177.4	8458.8	9111.3	10495.0	12304.5	12555.8	12167.1	15432.9
Other Income	393.7	439.8	573.3	588.4	301.2	391.6	427.6	325.3	464.5	335.8
Materials	3513.1	3310.8	4123.8	4111.8	4673.9	5545.9	6268.3	6144.1	6161.6	7904.0
Salaries, Wages & Benefits	1157.7	1270.7	1447.4	1449.6	2035.5	2509.0	2354.2	2633.8	2859.4	3397.7
Depreciation	400.6	401.7	413.7	391.8	397.4	403.4	424.6	491.7	480.6	479.7
Interest	321.1	462.5	772.9	936.0	561.4	435.8	657.9	510.1	711.2	327.9
Manufacturing & Other Expenses	1464.0	1389.9	1578.6	1759.4	1586.2	1752.8	2070.4	2078.0	1716.7	1995.1
Profit Before Tax	539.7	675.0	414.3	398.6	158.1	239.7	956.7	1023.4	702.1	1664.3
Provision For Tax	197.2	317.5	105.0	60.0	0.2	32.7	444.8	489.4	165.8	585.0
Profit After Tax	342.5	357.5	309.3	338.6	157.9	207.0	511.9	534.0	536.3	1079.3
Dividend	96.0	128.0	128.0	128.0	128.0	128.0	160.0	160.0	160.0	200.0
Equity Capital	800.0	800.0	800.0	800.0	800.0	800.0	800.0	800.0	800.0	800.0
Reserves & Surplus	1777.5	2006.9	2188.1	2401.7	2438.5	2528.0	2894.9	3252.3	3613.0	4448.3
Loan Funds	2172.8	3070.4	5805.5	4302.6	2483.5	2175.2	3529.4	2233.7	1458.9	1097.4
Gross Block	4142.9	4520.6	4871.1	5312.2	5780.1	6318.1	6919.5	7196.7	7628.2	7722.2
Cumulative Depreciation	2531.0	2896.6	3283.2	3651.3	4015.2	4368.9	4755.3	5203.7	5618.7	5718.7
Inventory	4266.3	4103.9	5085.6	4802.0	4512.3	4726.4	4839.2	5037.3	5148.2	6715.5
Debtors	1623.5	2052.4	2782.0	3183.6	3888.1	4266.2	4761.7	5541.2	5846.3	6034.8
Working Capital	1336.2	1333.0	4179.9	4544.3	2372.0	1955.1	3046.2	2373.3	2558.9	3274.5
Capital Employed	2948.1	2957.0	5767.8	6205.2	4136.9	3904.3	5210.4	4366.3	4568.4	5278.0
Net Worth	2556.3	2796.8	2988.1	3199.9	3116.7	3174.3	3088.9	3508.8	4019.9	4912.5
No. of Employees	19357	19080	18840	18422	17805	17044	16255	15739	15618	14807

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Directors' Report

To the Shareholders,

Your Directors are pleased to present their report on the business and operations of your Company for the year ended 31st March 2000.

Operating results

Your Company achieved impressive growth in production, sales and profits during the year ended 31st March, 2000. Sales value was Rs.14941.5 millions, which was 24.63% higher than previous year's figure of Rs.11988.7 millions. Similarly, value of production of Rs.15432.9 millions also registered a 26.84% increase over the previous year's figure of Rs.12167 millions. Profit Before Tax has more than doubled to Rs.1664.3 millions for the year from Rs.702.1 millions for the previous year. The Profit After Tax of Rs.1079.3 millions for the year was higher than the previous year's figure of Rs. 536.3 millions.

The improvement in profitability is due to higher level sales/ production, better utilisation of resources, material yield improvements, indigenisation of high cost sub-assemblies and components, and the reduction of interest charge during 1999-2000.

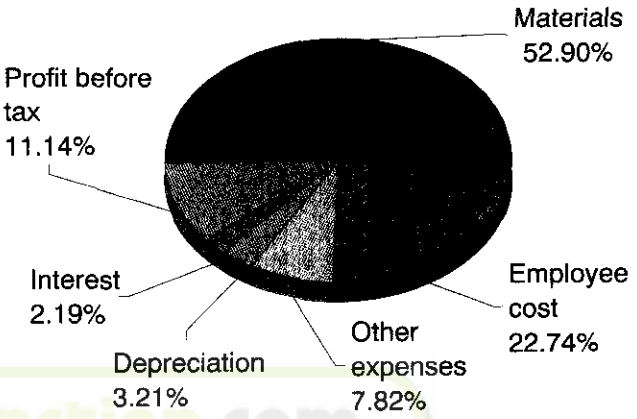
The operating results for the years 1999-2000 and 1998-99 are summarised below :

(Rs. in millions)

	1999-2000	1998-99
Value of Production	15432.9	12167.0
Turnover	14941.5	11988.7
Profit Before Depreciation, Interest and Tax	2471.9	1893.9
Interest	327.9	711.2
Depreciation	479.7	480.6
Profit Before Tax	1664.3	702.1
Provision for Tax	585.0	165.8
Profit After Tax	1079.3	536.3
Transfer from Investment Allowance Reserve	96.0	0
Appropriations:		
Capital Reserve	4.6	0.4
Proposed Dividend	200.0	160.0
Corporate Dividend Tax	44.0	17.6
General Reserve	726.7	358.3
Balance in P & L Account	200.0	0

Disposal of operating income for 1999-2000 is given below:

	Amount (Rs. in millions)	Percentage
Materials	7904.0	52.90
Employee cost	3397.7	22.74
Other expenses	1167.9	7.82
Depreciation	479.7	3.21
Interest	327.9	2.19
Profit before tax	1664.3	11.14
Total	14941.5	100.00



Appropriations & Dividend

Your Directors are pleased to recommend a dividend of Rs. 2.50 per share for the year 1999-2000. This would absorb a sum of Rs.200 millions. The Dividend, if approved by the shareholders at the ensuing Annual General Meeting, shall be paid within the statutory timeframe. Your Directors have recommended transfer of Rs. 4.6 millions to Capital Reserve, Rs. 96 millions from Investment Allowance Reserve to P& L Account and Rs. 726.7 millions to General Reserves after retaining Rs. 200 millions in P & L account.

Finance

Due to improvement in the order book, increased collection from sundry debtors and generally better working capital management, the overall borrowings have considerably reduced. Coupled with the above factors and softening of interest rates, the overall interest charge has more than halved from 1998-99 levels. Bank borrowings and Public Deposits are the two major sources of borrowed funds and the Company continues to explore avenues for further reduction in interest charges by locating and sourcing cheaper sources of funds. Public deposits with Company included Rs. 5 millions, which had matured but had not been claimed; out of which Rs 1 million was paid/renewed subsequently. Your Company had good liquidity position during the first quarter of 2000-01 and hence there is every possibility of further improvement in this regard during 2000-01.

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All the Units earned Profits

All the manufacturing Units of your Company performed well and earned profits during the year. This includes the Taloja Unit, which was incurring losses since inception. The prudent decision by the Company in 1998 to close down the Black & White TV glass shells production line in this Unit and diversify into other products like mobile electronic shelters for communication and radar systems, hydraulic systems for Tank Stabilizers, mechanical parts and electronic sub-assemblies has enabled the Unit to increase its turnover substantially and earn profit during the year.

Performance against MoU

The provisional evaluation of the Memorandum of Understanding (MoU) for the year 1999-2000 signed between the Company and the Government of India indicates a composite score of 1.32, i.e., "Excellent". The MoU with the Government of India for the year 2000-01 targets a turnover of Rs 16000 millions as against the actual of Rs 14941.5 millions achieved during 1999-2000.

The practice of signing MoU by the Corporate Office with all the manufacturing Units on similar lines as the MoU with the Government is continued with a view to setting targets and to evaluate the performance of the Units.

Order book position

The order status of the Company as on 1.4.2000 was Rs 27110 millions compared to Rs 19260 millions as on 1.4.1999. The value of orders received during the year is Rs.21480 millions, which is the highest ever order level. The value of executable orders out of the above is around Rs 13500 millions. This represents a very healthy order book. During the year, sizeable orders for Telecom products were received and the supplies to the Department of Telecommunications (DoT) registered a significant increase. Further orders worth Rs 2500 millions are anticipated from major customers like DoT, All India Radio, Doordarshan and others. With this comfortable order book, the Company is confident of meeting the target of Rs 16000 millions turnover for the year 2000-01 as envisaged in the MoU with the Government of India.

Diversification

The Company's efforts to bring in new products as well as diversify into areas other than Defence continued. Several new products were supplied to our customers for the first time during the year, based on indigenous development. These included:-

- Compact Vacuum Interrupter for Switch gears.
- New Version Airport Display System for Mumbai Airport.
- Solar Photovoltaic products like Traffic Lighting Systems, Lanterns, Street Lights, Pupmping Systems etc.
- Manufacture of Mother Boards for the computer market.
- Universal Emergency Communication System
- Main Automatic Exchange - XL (C-DoT design)

As a result of these efforts, value of supplies to non-defence sector registered a figure of Rs. 3710 millions compared to Rs. 3090 millions & Rs. 2650 millions in the previous two years. These efforts will be continued in the coming years also.

Exports

BEL made direct export of goods worth Rs.260 millions during 1999-2000 as against Rs.311 millions during the previous year. Company's exports included Telecom equipment to Kenya, TDMA Point to Multipoint Equipment & Radio Programme distribution network to Nepal, Night Vision Goggles and Optical Components to Israel & Scotland, Small Signal Devices to Austria, Hong Kong, Singapore & South Korea, Transmitting Tubes & Motor Parts to USA etc. For the first time a large telecom network covering 85 stations has been supplied and commissioned on a turnkey basis abroad. Radio Programme Distribution Network using VSATs covering 7 stations has been supplied, installed and commissioned in Nepal.

Joint Ventures

The Company's joint venture with GE for CTMAX and other X-Ray Tubes, GE BE Limited, continued its good performance. It has declared a 15% dividend during the year under review. BE-Delft Electronics Ltd., the joint venture with Delft Instruments, Holland was affected due to lack of orders in the past. The order book position of this JVC has improved considerably during the year and further large orders are expected during 2000-01. The Company is expected to turn around during the year 2000-01, if the anticipated orders materialise. BEL Multitone Ltd., the joint venture with Multitone Electronics PLC continued its operations during the year. In view of the falling pager market, the company is planning to diversify into new areas.

Research and Development

BEL develops a large number of products through sustained Research & Development (R&D) efforts. Most of these products are developed through in-house R&D and some of them are developed jointly with National Laboratories/ Organisations like Defence Research & Development Organisation and academic institutions. For a few products, the Company takes the foreign technical collaboration route. Central Research Laboratory (CRL) of BEL, not only concentrates on blue sky and experimental research in the forefront of technologies of BEL's interest, but also actively supports BEL's on-going R&D projects at various Units of BEL by bringing in state-of-the-art technological features.

BEL has spent Rs. 770.37 millions on R&D during 1999-2000, which is about 5% of the turnover. Out of 5 D&E

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projects put up for the MoU with the Ministry of Defence, Government of India, under the clause of New Product Development, 3 projects have achieved "Excellent' criterion values and 2 projects got 'Very Good' criterion values for maintaining the committed schedules. D&E Units at Bangalore, Machilipatnam and Chennai have been upgraded to receive ISO 9001 status certification during the year 1999-2000. Hyderabad Unit of BEL received Defence Technology Absorption Award '98 sponsored by DRDO during 1999-2000. Information required to be disclosed in Form 'B' under the Companies (Disclosure of Particulars in the Report of the Board of Directors) Rules, 1988 is annexed to this report.

Indigenisation and Cost Reduction

Indigenisation activities have become part and parcel of the manufacturing activities in the company. This has gained more significance during the past 2-3 years when the company had to face restriction on imports from US and European countries. In addition to overcoming the dependence on foreign sources for supply, indigenisation provides adequate value addition for the products and a steady source of local supply which helps the Company to provide long term and sustained product support to the customers. Indigenisation activities have been given a very clear focus under the overall efforts taken by the Company in the area of cost reduction. The task forces set up in the Company to address cost reduction in various areas have looked into possibilities of indigenisation in a great number of the products and succeeded to a large extent. These efforts will be intensified in the coming years.

Quality

All the 29 manufacturing Divisions of the Company have acquired ISO 9000 certification. Of these 6 Divisions have ISO 9001 certification while the other Divisions have ISO 9002 certification. The Development & Engineering Division of the Bangalore Complex has also received ISO 9001 certification as a Design House. In order to give renewed thrust to the Total Organisation Quality Enhancement (TORQUE) activities, bi-annual TORQUE Co-ordinators' Conference and quarterly meetings of the Review Committee on TORQUE Implementation were organised. Company has been providing extensive training covering the rank and file of the Company employees on the Philip B Crosby methodology of Quality Improvement Process Management. For sustained training of employees of the Company on Quality Initiatives the Company has during the year set up the Bharat Electronics Quality Institute. This is a strategic initiative aimed at improving the organisational effectiveness. The initiative taken by the management for 6-SIGMA was strengthened during the year through structured training programmes for two batches of Green Belts.

Energy conservation & pollution control

A green, dust free environment is essential not only for the electronics industry, but the society at large. Your Company has supported the green environment movement by effective effluents treatment in all its Units, use of recycled water for gardening and industrial use and by harnessing solar power. Energy conservation is another area in focus in the Company and the Company has over the years implemented very efficient energy conservation measures. The details of energy conservation in accordance with the Companies (Disclosure of particulars in the Report of Board of Directors) Rules 1988, is Annexed as Form A.

Year 2000 Compliance

Your Company as early as in November, 1998 started addressing the Y2K problem. Task Forces were set up in all the Units of the Company and a central team in the Corporate Office monitored steps to be taken in the Company for ensuring that all the systems are Y2K compliant much before 1st January, 2000. Training on the subject was imparted to all concerned employees at different levels and informative details circulated throughout the Company for creating awareness. Internal audit teams were set up for carrying out audit in all the Divisions and Units of the Company. As a result of these efforts, the Company ensured a smooth roll over to the Year 2000.

US Sanctions

The US Government placed three Units of BEL located in Bangalore, Hyderabad & Ghaziabad in the entity list. The sanctions which affected the manufacturing activities of these Units in the previous two years continued to have marginal impact during the year under report. However, the task forces set up earlier persisted with their efforts to identify alternative sources, alternative components and redesigning, wherever necessary. These sustained and focussed efforts helped the Company to cope with the sanctions to a large extent and enabled it to supply most of the contracted equipment on time.

Implementation of official language

The Company continues to encourage use of official language by employees at all levels. Additional Incentive Scheme for doing endorsement in Hindi was introduced. Question papers of internal promotion exams were provided in Hindi for those who opted for the same. Candidates of the recruitment exams were given the option to answer their oral interviews in Hindi. Use of Hindi on computers was encouraged by means of bilingual software and training on language software on I-Leap. Hindi version of the house journal Electronica was made available. Company profile has been put up in Hindi on BEL website www.bel-india.com.

Personnel

Your Company had introduced Voluntary Retirement Scheme (VRS) during the year and a record 927 employees were given VRS and a sum of Rs. 327 millions was paid as VR compensation and charged off during the year under report. The employees strength was 14,807 as on 31.3.2000 as compared to 15,618 as on 31.3.1999. The Company continued its VRS to bring down surplus labour and this has enabled the Company to bring down the employees strength to a considerable extent.

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The particulars of SC/ST, ex-servicemen and physically handicapped employees as at the end of the year are given in the following table:

Category of employees	Group 'A'	Group 'B'	Group 'C'	Group 'D'	Remarks
Scheduled Caste	457	41	1867	*351 **-	*Excluding sweepers **Sweepers
Scheduled Tribe	83	3	86	*41 **-	*Excluding sweepers **Sweepers
Ex-servicemen	60	19	451	154	
Dependants of Ex-servicemen	NA	NA	NA	NA	
Physically Handicapped	9	0	122	80	Reservation quota 3% in Group 'C' & 'D'

Vigilance

BEL has an elaborate and well-structured Vigilance machinery. Vigilance status is reviewed regularly by the Chief Vigilance Officer, General Managers, Functional Directors and the Chairman & Managing Director. In addition, vigilance status is reported to the Board of Directors and the Directors review the vigilance status every half-year. Apart from regular vigilance functions, in accordance with the direction of Chief Vigilance Commissioner, the Purchase Procedure and Sub-contract Procedures were amended and suitable instructions were issued.

Industrial relation & employee welfare

Industrial Relations in the Company remained normal and peaceful during the year. The Executives' pay revision operative for a period of 10 years effective 1st January, 1997 was implemented in the month of September, 1999. However, the wage negotiations with the workers are under progress.

During the year, the Company continued its various welfare schemes, viz. de-addiction programmes for alcoholics and their rehabilitation, employment of physically handicapped persons etc. The Company provides basic medical facilities to its employees and their family members at its hospital at Bangalore. Company has a very effective medical assistance scheme which covers all employees and their dependent family members. Performance of BEL Schools and College was good during the year. BEL has a special School at Bangalore functioning for the welfare of mentally challenged children of employees and others.

The Company contributed substantially to the national resource mobilisation efforts of the Government at the time of Kargil conflict by donating a sum of Rs.20 millions to the National Defence Fund. In addition, all employees of the Company contributed one day's salary to the National Defence Fund for helping the families of the Defence Personnel who made supreme sacrifice in defending the the country. In connection with Orissa Cyclone Relief Operation, BEL undertook, as a humanitarian effort, the work of construction of 500 low cost dwelling units at a cost of Rs. 12.5 millions in Katuru and K. Arjipalli villages of Chatrapur Block, Ganjam District, Orissa State. Employees of BEL contributed Rs. 2.5 millions to the Chief Minister's Relief Fund and Rs. 0.94 millions to the Prime Minister's Relief Fund, towards this.

Directorate

There was no change in the Board of Directors of the Company during the year.

Auditors

On the advice of the Comptroller and Auditor General of India, the Central Government has appointed M/s. K.P. Rao & Company, Chartered Accountants, Bangalore as Statutory Auditors for the year 1999-2000. M/s. Chandiok & Guliani, Chartered Accountants, New Delhi were appointed as Branch Auditors of Ghaziabad, Panchkula and Kotdwara Units for 1999-2000. M/s. P.G. Joshi & Company, Chartered Accountants, Pune were appointed as Branch Auditors for Pune and Taloja Units for 1999-2000. M/s. Siva Krishna and Narayan, Chartered Accountants, Machilipatnam were re-appointed as Branch Auditors for Machilipatnam Unit for 1999-2000.

Management's replies to the comments/observations by Statutory Auditors and the comments of the Comptroller & Auditor General of India are appended to this report. The review of accounts by the Comptroller and Auditor General of India, for the year 1999-2000 is appended to this report.

Particulars of employees

The particulars to be furnished as per Section 217(2A) of the Companies Act, read with the Companies (Particulars of Employees) Rules 1975, as amended, are attached.

Acknowledgement

Your Directors thank all customers of the Company, particularly the Defence Services, for their wholehearted support and look forward to their continued support for the growth of the Company in future. Your Directors express their gratitude for support received from various Ministries of the Government of India, especially the Ministry of Defence, Department of Defence Production and Supplies. Your Directors express their sincere thanks to the Comptroller and Auditor General of India, Chairman, Members and employees of the Audit Board, Statutory Auditors and Branch Auditors, Company's Bankers, investors, collaborators and vendors. Your Directors appreciate the dedicated efforts put in by the employees at all levels, which enabled the Company to achieve the impressive performance during the year. Your Directors thank you, Shareholders, for your support and look forward to your sustained support and participation in the growth of the Company in the coming years.

For and on behalf of the Board

Bangalore
31/8/2000

Dr. V K KOSHY
Chairman & Managing Director

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Particulars under the Companies (Disclosure of Particulars in the Report of Board of Directors) Rules 1988

FORM - 'A'

I. Energy conservation measures taken during 1999-2000.

- Sustaining the level of awareness created.
- Optimum use of non-conventional energy sources.
- Implementation of Tata Energy Research Institute's recommendation for Energy saving in various Units.
- Proper sizing of motors for pumps.
- Use of compact fluorescent lamps.
- Use of "CONQUEST" Energy saver for Air-conditioners and Electronic ballast for Fluorescent lamps (Both under manufacture in BEL).

II The Company as a whole

A - Power & fuel consumption

		1999-2000	1998-99
1.	ELECTRICITY		
a)	Purchased (Units M kWhrs)	54.72	60.37
	Total amount (Rs. lakhs)	2380.32	2656.28
	Average Rate/Unit (Rs/kWhr)	4.35	4.40
b)	Own generation(Units M kWhrs)	1.56	0.68
	Total amount (Rs.lakhs)	177.53	51.75
	Average Rate/Unit (Rs/kWhr)	11.38	7.61
2.	HSD OIL		
	(Does not include generation)		
	Quantity (Kilo Litres)	936.14	980.03
	Amount (Rs. lakhs)	130.50	112.41
	Average Rate/Ltr. (Rs./Ltr)	13.94	11.47
3.	PETROL		
	Quantity (Kilo Litres)	58.60	54.65
	Amount (Rs. lakhs)	16.10	16.02
	Average Rate (Rs./Ltr.)	27.48	29.31
4.	LPG		
	Quantity (kg.)	167108	169712
	Amount (Rs. lakhs)	31.70	24.34
	Average Rate (Rs./kg)	18.97	14.34
5.	NATURALGAS		
	Quantity SM^3	-	5713630
	Amount (Rs. lakhs)	-	175.98
	Average amount (Rs./SM^3)	-	3.08

B - Consumption per unit of production

	1999-2000	1998-99
Electricity (kWhr/Rs. lakhs)	367.98	468.80
HSD Oil (Ltrs./Rs. lakhs)	6.08	7.52
Petrol (Ltrs/Rs.lakhs)	0.38	0.42
LPG (kgs/Rs.lakhs)	1.09	1.30

C - Impact of above measures taken during 1999-2000

Savings achieved in 1999-2000 compared with the consumption figure of 1998-99:

Electricity	+ 4.77 M kWhr
HSD Oil	+ 43.89 kLtr
Petrol	- 3.95 kLtr
LPG	+ 2.60 MT

(Note: (-) indicates excess consumption)

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FORM -'B'

R&D activities

1. Specific areas in which R&D was carried on by the Company

R&D activity in the Company focuses on the development of various types of electronic, electromagnetic, electro-optical and optical equipment and components & devices for both Defence and civilian applications. The Central Research Laboratory of the Company conducts theoretical and experimental research in the forefront of technologies of Company's interest and supports Company's on-going R&D projects.

2. Benefits derived as a result of R&D activities

The R&D efforts have resulted in development of new products, indigenisation of products, cost reduction, enhancement of quality of products etc.

3. *Future Plan of Action*

Revamp D&E initiatives for taking up more projects with good business potential through in-house R&D efforts and also jointly with R&D agencies like Defence Research & Development Organisation (DRDO), etc. To sustain growth in an increasingly competitive environment, R&D infrastructure will be augmented with the introduction of world class facilities, design tools & simulation packages. Reduction of design cycle time drastically for the newer designs. Extensive training for R&D leaders with exposure to modern R&D management techniques to take up new challenges effectively.

4. Expenditure on R&D

The Company spent Rs.770.37 millions on R&D during the year 1999-2000. This R&D expenditure represented 5 % of the turnover of the Company for the year. R&D expenditure on capital account was Rs. 66.83 millions and on revenue account Rs. 703.54 millions.

5. Technology Absorption, Adaptation and Innovation:

A. Efforts in brief, made towards technology absorption, adaptation and innovation

Restructuring of R&D organisation with formation of dedicated core groups for continuous updating of technology in respective areas, collaboration and involvement of Indian experts, Educational Institutions, National laboratories to help in adaptation of technology, training of company personnel in concerned technology areas, adaptation/improvement of imported technologies for local use etc.

B. Benefits derived as a result of the above efforts

Cost reduction; reliable products, improved productivity of men/machine/processes, improved quality, higher indigenous content in products and production of new products locally, foreign exchange savings, etc.

C. Information regarding technology imported during last 5 years

A number of technical collaboration agreements were entered into between April 1995 and March, 2000 for acquiring technologies relevant to the Company's business. Technologies acquired under these agreements have been fully absorbed in certain cases and are being absorbed in others.

Foreign exchange earnings and outgo

Foreign Exchange Earnings on account of export (FOB) was Rs. 220.40 millions as against Rs.284.20 millions in the previous year. Foreign Exchange outgo/expenditure was Rs. 6480.3 millions as against Rs. 5809.4 millions in the previous year.

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