COMMITTEE ON PUBLIC UNDERTAKINGS

(2001-2002)

(THIRTEENTH LOK SABHA)

STUDY TOUR REPORT

ON

SEMICONDUCTOR COMPLEX LIMITED

STUDY TOUR REPORT NO. 19

Laid in the Lok Sabha on **30 August 2001**

Laid in the Lok Sabha on **31 August 2001**

LOK SABHA SECRETARIAT

NEW DELHI

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Prof. Vijay Kumar Malhotra

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21. Shri C.P.Thirunavukkarasu
22. Shri Ranjan Prasad Yadav

SECRETARIAT

1. Shri. M. Rajagopalan Nair, Joint Secretary
2. Shri S. Bal Shekar, Director
3. Shri L.N.Gaur Under Secretary

INTRODUCTION

In pursuance of the procedure adopted under Rule 281 of the Rules of Procedure and Conduct of Business for laying the Study Tour Reports on the Tables of both the Houses of Parliament, I, Chairman, Committee on Public Undertakings have been authorised by the Committee to lay the Study Tour Report on their behalf, lay the Study Tour Report of the Committee on their discussions with the officials of Semiconductor Complex. Ltd.

2. The Committee held discussions with the officials at Chandigarh on 3.7.2001. A copy of the tour programme is annexed (Annexure-I).

3. The Committee considered and approved the Report at their sitting held on 27th August, 2001.

4. The Committee wish to express their thanks to Semiconductor Complex Ltd. for providing facilities during the visit of the Committee and for supplying necessary material and information required in connection with the Study Tour.

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

New Delhi
28 August, 2001
6 Bhadrapada, 1923(S)

PROF. VIJAY KUMAR MALHOTRA
CHAIRMAN
COMMITTEE ON PUBLIC UNDERTAKINGS

'STUDY TOUR NOTES' OF THE COMMITTEE ON PUBLIC UNDERTAKINGS'

DISCUSSION WITH THE OFFICIALS OF SEMICONDUCTOR COMPLEX LIMITED ON 3rd JULY, 2001 AT CHANDIGARH

At the outset, the Chairman, Committee on Public Undertakings made opening remarks and requested the Chairman-cum-Managing Director, Semiconductor Complex Limited (SCL) to introduce himself and his colleagues to the Committee. The Chairman, Committee on Public Undertakings also requested to give a brief account of the working of the Company.

After the introduction of the officers of Semiconductor Complex Limited, the CMD SCL informed the Committee that the Semiconductor Complex Limited (SCL) was set up to design, develop and manufacture LSI/VLSI (Very large Scale Integrated Circuits) devices and system/board level products in the country. Since 1984, the company has been supplying key VLSIs to telecom, industrial strategic sectors.

OBJECTIVES

The preamble of the Company envisages that the SCL was established in 1983 with the basic objective of achieving "self-reliance both in terms of having domestic control over a fundamental building technology (for electronic industry) and in terms of strategic needs."

When asked as to what extent has the company been able to fulfil the objectives as envisaged in the Preamble of the Company, it has been stated that having developed process and design technologies through in-house R&D efforts, the company has been able to build capability in the country in this vital area of microelectronics.

When the Committee desired to know that how far has the company been able to achieve self-reliance in the area of microelectronics, the Committee were informed that the Company has been able to meet specific requirement of the

strategic sector how-so-ever challenging those have been through in-house development of technologies and products. While it is true that various organisation of the strategic sector viz. DRDO, Space, Deptt. of Atomic Energy do resort to import of several types of ICs, contribution by SCL has been significant in that the company has participated in critical and important projects of the strategic sector which have/would have invited embargoes from developed countries. The indigenous development of technologies and products based on those technologies by SCL has undoubtedly provided the necessary capability in this vital area to develop newer technologies/products to cater to the strategic needs of the country. Thus self-reliance has been achieved in terms of having gained enough expertise to possess necessary control over this strategically important technology.

When asked to give a brief account of the major achievements made by SCL in meeting the designated objectives, specifically in fulfilling the strategic needs of the country, it has been stated that the company after starting commercial production with imported 5 micron CMOS technology in 1984, developed the next generation technologies viz. 3 micron, 2 micron, 1.2 micron and now 0.8 micron CMOS as also certain specialized technologies through in-house R&D thereby avoiding repetitive purchase of the technologies. The indigenous development of these technologies is a very significant achievement considering that the company started practically from a position of very little experience in this high tech area. The company has over the years developed and supplied key VLSIs to the telecom, watch and clock industry, industrial market segments and more importantly to the strategic sector. About 76 products have been developed majority of which have been ASICs for the strategic sector and which include missiles, sub-marine, telemetry, Satellites, Imaging, dosimetry etc. which have/would have invited

embargos from developed countries. The services rendered by SCL to strategic sector in successful accomplishment of important national projects has been well acknowledged as is evident from the representative letters of strategic organisations viz. defence, space and Atomic Energy Major achievements in respect of the Strategic Sector are briefly mentioned below:

DEFENCE

SCL has been extensively working with DRDO laboratories covering all the three wings of defence. The major projects in which SCL has participated include **NAG, Prithvi & other missile programmes, Radars** etc. Most of these projects required development of specialised design/process technologies; significant being in the case of NAG project where the company developed a fairly complex technology viz. Charged Coupled Device (CCD) for IR imaging.

The company has also been catering to the specific needs of Navy. Important products developed include Programmable Signal Processor, IIR Filter for SONAR applications. A major product currently under development in 0.8 micron CMOS is the FFT Processor for use in missiles.

For the Airforce, SCL has undertaken the task of developing replacement System level cards for AN32 Aircraft and MI 8 and MI 17 Helicopters and various ground based systems for which supplies from sources abroad have since ceased.

Recognising SCL's expertise and experience in Semiconductor Operation, DRDO also entrusted the responsibility of setting up of **Gallium Arsenide Enabling Technology Centre (GAETEC)** project which was completed and commissioned in 1996 and produced the first MMIC in 1997.

SPACE

The company has been participating in the projects of Space organisation notably **IRS** and **PSLV** programmes. One of the recent achievements of SCL in this sector has been the development of **4K Linear Visible Spectrum CCD** for imaging applications. Successful development of this important technology has been termed by ISRO as one step forward in the country's self-reliance and technological progress. This success has paved the way for more complex projects of national importance coming from ISRO for development by the company which include 12K/14K TDI mode CCD and Frame Transfer CCD devices for which feasibility study is in progress.

Other notable products currently under development include Pressure Transducer Electronics, Software Programmable Data Acquisition System, 12 Bit DAC & 12 Bit ADC and MEMs based Pressure Transducer.

ATOMIC ENERGY

In the case of Deptt. of Atomic Energy (DAE), a recent development is an important ASIC viz. **Multiplexed Analog Signal Processor (MANAS)** for Saha Institute of Nuclear Physics (SINP, Kolkatta) which is being used in an international cooperation project viz. ALICE project at **CERN, Geneva**. The successful design and development of this product has been appreciated by the International Community who have expressed keen interest and confidence in the Indian effort. Currently the company is developing ICs for applications such as Spectrometer, Dosimetry for DAE.

In short, the company has been fulfilling its objective of meeting the IC requirements of the strategic sector specifically those which are either not easily available or available at exorbitant prices from overseas sources.

When asked that in the light of the changes that have taken place in the electronics industry whether the company is planning to re-orient the objectives/micro-objectives to cope up with the changing scenario, the Committee were informed that while fulfilling the strategic needs of the country in the vital field of microelectronics, it shall continue to be the basic objective of the company which shall guide its activities, the company has been indeed looking for newer business opportunities in the face of changing business environment.

Keeping its strengths in mind some of the new opportunities identified by the company include Electronic Energy Meters, Smart Cards. The company is also contemplating to start VLSI Design Education Courses for training manpower in this field which promises a significant business opportunity in the years to come.

When the Committee desired to know the benefits, the Company is going to get because of the enactment of the Semiconductor Integrated Circuits Layout-Design Act, 2000, it was informed that the Act basically provides for protection of Semiconductor Integrated Circuits Layout-Design which is an intellectual property by itself. The Act shall safeguard SCL, like any semiconductor design company, from any unauthorised use of its semiconductor designs developed in-house.

CAPACITY UTILISATION

With regard to the installed capacity for various items produced in the company and target set for production of each product and the achievements made thereof in each of the last five years in each of the last 5 years as also the reasons for low capacity utilisation, if any, the Committee have been informed that the installed capacity of the manufacturing facilities at SCL, the target utilisation and the achievement during the last five years is as under:-

Year	**Rated Capacity**		**Target Capacity Utilisation**		**Capacity Utilised**	
	VLSI Wafer (6") processing (Qty. in '000' nos)	System/Board Level Assembly (Qty. in '000' nos)	VLSI Wafer (6") processing (Qty. in '000' nos)	System/Board Level Assembly (Qty. in '000' nos)	VLSI Wafer (6") processing (Qty. in '000' nos)	System/ Board Level Assembly (Qty. in '000' nos)
1996-97	-	100	-	51.81	-	50.45
1997-98	-	100	-	51.45	-	39
1998-99*	20	100	1.0	57.58	1.15	27
1999-00	20	100	7.0	52.35	1.56	36
2000-01	20	100	4.1	46.60	1.83	14.47

*Start of commercial production from the rebuilt wafer fabrication facility

Low capacity utilisation in respect of wafer fab facility has been primarily on account of limited and fragmented IC market which has resulted in difficulties in economies of scale which problem has been further compounded due to difficulties faced by the company in the development of new products due to attrition of experienced and trained engineering manpower from the company in the recent years mainly on account of current remuneration which is less than even that of Government not to speak of private/MNCs operating in the country.

The rated capacity in respect of Board/System level assembly which accounts for only a small fraction of the total capital outlay, relates more to the available manpower. The fall in capacity utilisation during 1998-99 to 2000-2001, due to fall in demand of one of the products, is now being made up through the manufacture of EEMs.

PRODUCTION PERFORMANCE

With regard to the total amount of production during 2000-2001, the Committee were informed about the production target and the annual performance for the year 2000-2001 as under:

Year	**Target**		**Actual**	
	Dies/ Devices (Qty. in '000' nos)	System/Board Level Products (Qty. in '000' nos)	Dies/ Devices (Qty. in '000' nos)	System/Board Level Products (Qty. in '000' nos)
2000-01	6666	46.6	3031	14.5

In so far as the reasons for shortfall in the dies/devices are concerned, this was mainly on account of some of the envisaged products having to undergo design iteration/re-engineering with the result those could not be transferred to production. Value-wise, however, sales target of VLSI Division has been achieved as a result of

increased sales of higher ASP product(s). As regards the System/Board Level products while there is a shortfall in the production quantities, since boards of higher ASPs were produced and sold at the cost of low volume products, the sales turnover from the Systems Division exceeded the target set for the fiscal 2000-2001.

When asked about the production performance of the company vis-à-vis the targets during the last 5 years and also during the first quarter of 2000-2001, the company have furnished the information in the following tabulation

Year	**Target**		**Actual**	
	Dies/ Devices (Qty. in '000' nos)	System/Board Level Products (Qty. in '000' nos)	Dies/ Devices (Qty. in '000' nos)	System/Board Level Products (Qty. in '000' nos)
1996-97	3996	51.80	2792	50.45
1997-98	2992	51.45	2364	38.88
1998-99	2362	31.38	2277	27.26
1999-00	4489	52.35	2887	35.02
2000-01	6666	46.60	3031	14.50

Year	**Target**		**Actual(Till May 2001)**	
	Dies/ Devices (Qty. in '000' nos)	System/Board Level Products (Qty. in '000' nos)	Dies/ Devices (Qty. in '000' nos)	System/Board Level Products (Qty. in '000' nos)
2001-02	655	21	447	11

SALES TURNOVER

The Sales Turnover of the company during the last three years i.e. 19998-99, 1999-2000,2000-2001 are as follows:

S.No.		**1998-99**		**1999-2000**		**2000-01 (Provisional/Unaudited)**	
		Target	Actual	Target	Actual	Target	Actual
1.	Sales Turnover	45.12	45.01	50.66	58.45	62.68	66.30

The committee were further informed that while it may be seen that there has been continuous improvement in the sales turnover, the company has been striving hard to further improve its sales performance through introduction of more products and also by entering into newer business areas such as Electronic Energy Meters, Smart Cards, certain telecom systems, Information technology services, VLSI design education etc.

FINANCIAL PERFORMANCE

The targetted and actual profit/loss of the Company during last 3 years as under:

S.No.		1998-99		1999-2000		2000-01 (Provisional/Unaudited)	
		Target	Actual	Target	Actual	Target	Actual
1.	Operational Profit/Loss	-14.16	-11.85	-11.70	-6.06	-12.31	-4.85
2.	Cash Profit/Loss	-6.13	-3.44	-7.2	1.29	-7.06	2.45
3.	Net Profit/Loss	-20.19	-28.05*	-21.01	-13.06	-20.87	-11.35

* Includes doubtful old debt amounting to about Rs. 10 crore.

As may be seen from the above tabulation, the company has posted operational losses during 1999-2000 and 2000-01, cash profits have been shown during the said years. When asked to clarify the difference between operational profit/loss and the cash profit/loss, it has been stated that while the operational loss pertains to the loss incurred by the company from its operations during the year, upon accounting for other income which is largely the interest income earned by the company on its fixed deposits, there is cash profit to the company during the said financial years.

When asked about the reasons for the poor financial performance of the company and what ameliorative actions have been initiated to reverse the declining trend in profitability, the Committee were informed that the financial performance of the company over the last few years has not been declining but showing a steady improvement, having posted cash profits during the year 1999-2000 and 2000-2001. The major reason for having posted net losses is the increased level of expenditure and depreciation upon the wafer processing facility having become fully operational during 1998-99. It may be pertinent to mention here that the re-building of VLSI Project at an outlay of Rs. 332.56 crore was approved by Union Cabinet keeping in mind self-reliance consideration for microelectronics despite its commercial un-viability. Indeed net-losses were envisaged at the time of seeking approval of the Revised Cost Estimate –II (RCE-II) of the project.

When further asked whether the company price its product with adequate margin of profit, as SCL appear to manufacture mostly proprietary articles of strategic importance of which SCL is the only manufacturer of no competitors, the Committee were informed that the pricing for the strategic projects of proprietary nature is arrived at after mutual discussions/agreement with the concerned strategic organisation in a fairly transparent manner. The pricing essentially covers the cost to the company plus a reasonable profit margin.

When the Committee desired to know as to who are company's major competitors, the Committee were informed that in the case of ICs, the company is facing competition mostly from foreign companies, notably Hitachi, Japan and UMC, Taiwan for telecom. In respect of system products like Electronic Energy Meters and Telecom transmission equipment, the competition is from a host of

Indian companies (e.g.Hawell, Electronic Energy System, BHEL etc. in respect of EEMs and ITI, PCL, HFCL, HECL etc. in respect of Telecom Transmission equipment), both public and private, most whom supply these products based on either manufacture under some tie-ups or trading from overseas.

When asked to explain how do the prices compare with ITI & HTL in Telecom products, the Committee were informed that supplies being made against competitive bidding the price being offered by the company are by and large comparable to those offered by other companies.

REBUILDING OF VLSI FABRICATION FACILITY

It has been stated by the Company that rebuilding of the VLSI fabrication facility at an outlay of Rs. 332.56 crore was approved by the Union Cabinet in March, 1997 on Broader National Self-reliance considerations for Microelectronics. The facility was dedicated to the nation by the Hon'ble Prime Minister in December, 1997 and the commercial operations from it started in 1998.

When asked about the major achievements of the Company with regard to rebuilt VLSI fabrication facility since the commencement of its commercial operation in 1998 and whether the return on investment are adequate, the Committee were informed that the major achievements include establishment of in-house developed process technologies in the fad viz 1.2 micron CMOS, 1.2 micron BHCMOS, 1.2 micron low voltage CMOS, 4K Linear Imager CCD, 0.8 micron CMOS and employing the same for development of products both ASICs for the strategic sector and standard products such as Tone Pulse Dialler, Hearing Aid, Single Chip Telephone, 1Electronic Energy Meter which products have or shall earn revenues to the company in the future years. However, the return on investment by normal commercial standards is not adequate which, as mentioned

earlier, was indeed envisaged at the time of seeking approval of the VLSI project. The commercial viability was nevertheless envisaged to be improved through JV partnership which has not materialised despite best efforts made by the company.

When the Committee further desired to know that in which way is VLSI fabrication facility going to help the company in achieving self-reliance, it has been stated that the VLSI fabrication facility at SCL was set up to be an integrated facility to provide a comprehensive indigenous capability covering design, process, assembly, packaging, testing and quality assurance. The facility at SCL does represent a nucleus for the growth of microelectronics in the country and with its emphasis on R&D from inception, the company was gained enough experience and expertise to undertake any challenging technology/product development tasks in the spirit of achieving self-reliance.

When asked to furnish the details about the market demand for products manufactured by the Company and whether the Company have explored the possibilities for new customers for its products, the Committee were informed that the addressible domestic market of Ics/ASICs manufactured by SCL is of the order of Rs. 70 crore while the company's current market share is about Rs. 40 crore. While majority of products of the company are ASICs for specific customers, the company has indeed been marking efforts to locate new customers for its standard products such as EEMs, Telephone IC etc.

PERFORMANCE HIGHLIGHTS

It has been stated in the brief that Telecom and ASICs are currently the main product segments of the company. Over 76 products have been developed majority of which have been ASICs for the strategic sector. It has also been stated that more recently, the company has developed CCD linear imager for ISRO for

imaging applications and Multiplexed Analog Mixed Signal Processor (MANAS) for Department of Atomic Energy (DAE). Other notable products include GIST-II for CDAC, SP CARD for C-DOT Switching Equipment, Telephone Ics, VT Fuse, Electronic Energy Meter IC, ASICs for Railways, Hearing AID, Pacemaker etc.

Keeping in view the changes that are taking place globally in the field of information technology and information science and its repercussions on the developing countries, the Committee desired to know whether the product-base of the company is sufficient to cater to the needs of the strategic sector in the country and abroad. The Committee were informed that while the product base of the company cannot be as diverse as to meet all the needs presently being met through imports, the company has the experience and expertise to meet critical needs of the strategic sector.

When further desired to have details of any plan to increase the product base in near future, the Committee were informed that the company will continue to look for more business opportunities in the ASIC segment in addition to doing variants of some of the existing products.

PROJECTS UNDER PROGRESS

The Company has stated that the following projects are under progress/being taken up for strategic sector pertaining to DRDO, ISRO AND DAE:

- High Speed DAC
- Pressure Transducer Electronics
- FFT Process
- Softore Programmable Data Acquisition System (SOFTDAS)
- 12 BIT D/A & 12 BIT A/D
- 12 K/14 K TDI CCD

- Frame Transfer Area CCD
- Video Compression
- Set of 5 chips
- X-Y Readout chip
- MEMS Based pressure Transducer.

When the Committee asked to furnish details of the completion schedule for these products mentioning inter-alia the scheduled date of completion, expenditure sanctioned and disbursed so far (project-wise) and the progress in each of the projects so far, the Committee were informed about the required details in respect of products under progress/being taken up for strategic sector as follows:

Sl. No.	**Product**	**Schedule date of Completion**	**Project Cost/PO Value (In Rs. Lakh)**	**Payment Received (In Rs. Lakh)**	**Current Status**
1.	High Speed DAC	June, 2001	18.00	10.80	Design, Fabrication, Assembly has been completed. The ASIC is under testing at present.
2.	Pressure Transducer ASIC	Dec., 2001	30.00	18.00	Design Fabrication and wafer level testing of the first batch of wafers have been completed. Design modification as agreed with LPSS/ISRO are being done.
3.	FFT Processer	May, 2001	22.50	13.50	Design, Fabrication, Assembly and Testing has been completed for the devices from the first run. Design debug alongwith DRDL is in progress.
4.	SOftDAS ASIC	Mar., 2002	49.80	5.00	Phase-I of the project for finalisation of specification of SoftDAS ASIC based on preliminary front end design is in progress. The specifications are nearing finalisation..

5.	12 Bit DAC/ADC	Oct., 2001	16.50	9.20	Study of Architecture has been completed. Specification of the ASIC to be implemented at SCL are under finalisation.
6.	12K/14K TDI CCD	-	-	-	Feasibility study is in progress. Budgetary project proposal submitted to ISRO.
7.	Frame Transfer Area CCD	-	-	-	Feasibility study is in progress. Budgetary project proposal submitted to ISRO.
8.	Video Compression ASIC	-	-	-	Budgetary project proposal submitted to DRDL. DRDL first verifying their concept on FPGA.
9.	Set of 5 chips for BARC	June, 2002	40.00	7.20	Schematics of 3 ASIC have been received from BARC. Design is in progress.
10.	X-Y Readout Chip	August, 2001	4.80	2.80	The project is first for feasibility analysis which is under progress.
11.	MEMS Based Pressure Transducer	-	-	-	Project proposal submitted to B-Smart.

It has been stated in the Brief that a full-fledged LAB exists in the Company for Quality Assurance and Reliability evaluation to quality for MIL (Military Standards) –883, AGRIPEC (Advisory Group for Reliability Information on Professional Electronic Components) and JSS (Joint Services Specifications). These standards refer to screening, qualification, reliability monitoring of products and assures highest quality and most reliable LSI/VLSI products that can be manufactured. These standards are based on international standard. The company manufactures VLSI Devices based on these standards. It has been further informed that there is no major complaint with regard to the quality of the product being manufactured by the Company.

RESEACH & DEVELOPMENT

It has been stated that the Company has in-house R&D facilities for undertaking Research and Development activities. When the Committee desired to know about the allocation of funds on R&D activities and its percentage out of the total expenditure during each of the last three years, the Committee were informed that the R&D expenditure for the last three years and its percentage out of the total expenditure is given below:

YEAR	R&D EXPENDITURE (RS. IN LAKH)	TOTAL EXPENDITURE (RS. IN LAKH)	R&D EXPENDITURE AS PERCENTAGE OF TOTAL EXPENDITURE
1997-98	3.18.08	5139.78	6.20%
1998-99	455.69	5872.09	7.80%
1999-2000	386.34	6835.06	5.65%

When the Committee desired to know whether the expenditure incurred on R&D is adequate given the importance of this activity in this hi-tech field where rate of obsolescence is quite high, the committee were informed that this level of expenditure on R&D dictated primarily by the R&D revenue grant made available by the Government till 2000-01, has by and large been adequate for the size of operation by the company. Request for continuation of R&D activities as planned has already been made to the Government. Further, the requirement of R&D grant has also been projected in the 10t^{h} five year plan (2001-07) submitted recently to the MIT.

When asked whether the R&D activities in the company helped in any manner product/process improvement, technology upgradation and cost reduction, it has been stated that the R&D activities have indeed helped in technology upgradation, cost reduction and product development. As mentioned, it was due to

in-house R&D efforts that the company after importing 5 micron CMOS technology has developed the next generation 3 micron, 2 micron, 1.2 micron and now 0.8 micron CMOS technologies besides specialised technologies such as EEPROM and CCD technology. Reduction in feature size is a major index for IC technological progress and implies higher speed with many more devices accommodated on a single chip. This reduction in feature size has helped the company to manufacture products at a lower price.

The Company has primarily two Strategic Business Units (SBUs) viz VLSI SBU and Systems SBU. The VLSI SBU comprises Wafer Fabrication, R&D, Testing and Assembly while the Systems SBU comprises Systems/Board Level Manufacturing and Systems Development. In addition, the Company has also made a beginning in the Information Technology Services (ITS) field only recently and created a ITS Unit.

When asked whether any measures have been initiated to revamp/reorient the present organisational set-up of SCL with a view to effectively meet the challenges of the future, the Committee have been informed that the present organisation structure is actually the result of a reorientation done following a study on the organisation structure and manpower needs got done through Punjab University School of Business in late 1996, with a view to meet the challenges of the future. This organisation structure was again reviewed in early 1999.

BOARD OF DIRECTORS

As per the Article of Association of the Company, the number of Directors of the Company shall not be less than 2 (two) or more than 10(ten). The current strength of the Board is 6 (six). Filling up of the vacancies is understandably under progress by the Government.

With regard to the powers of Board of Directors, Chairman-cum-Managing Director and other functionaries, it has been stated that in keeping with the changed business environment, there is a scope for giving more powers to the Board/CMD particularly in respect of sanctioning monetary incentives to the key employees of the company so as to contain their exodus, formation of JV companies (subject to a certain maximum investment), overseas travel without reference to Government (subject to a maximum of say 2 in a year)etc.

The Committee were informed about the total Manpower strength of the company as on May,2001 is 862. Manpower sanctioned and actual strength (category-wise) of the company (including Gaetec) during the last 3 years is as follows:

Category	**Manpower Strength**					
	1998-99		**1999-2000**		**2000-01**	
	Sanctioned Strength*	Actual	Sanctioned Strength*	Actual	Sanctioned Strength*	Actual
Executives(Technical)	194	147	194	134	194	145
Executives (Non-Technical)	77	70	77	67	77	68
Non - Executives (Technical & Non-Technical)	449	510	449	508	449	497
	720	727	720	709	720	710

*As per recent organisation structure

Category	**Manpower Strength**					
	1998-99		**1999-2000**		**2000-01**	
	Sanctioned Strength*	Actual	Sanctioned Strength*	Actual	Sanctioned Strength*	Actual
Executives(Technical)	40	31	40	37	47	40
Executives (Non-Technical)	10	8	10	8	10	9

Non-Executives (Technical & Non-Technical)	100	89	100	101	113	101
	150	128	150	146	170	150

*As per recent organisation structure

When asked by the Committee whether present Manpower is adequate and are there any plans to downsize the manpower in the near future, the Committee have been informed that the Company is contemplating to introduce VRS which is under approval of the Government to make the organisation lean and efficient to the extent possible. The number of employees who left the Organisation during the last five years is given below:-

1996-97	34
1996-98	39
1996-99	27
1999-2K	33
2000-01	52
-	-------
	185*
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*Includes 20 at Gaetec

MANPOWER

It has been stated by the company that attrition of experienced Technical Manpower is a Major problem. Current Scales of Pay is stated to have been causing serious implementation of Revised Scales of Pay due from 1.1.1997.

When asked what actions have been contemplated to check the exodus of the experienced staff in the Company, the Committee were informed that implementation of revised scales (due 1.1.97) is a major step that could to some extent check attrition of experienced staff who are leaving for better pay packets.

The company has been closely following up with the Government for approval of the proposal for implementation of revised scales of pay.

When further asked whether the revised scales of pay have been implemented in the company now , it has been stated that the revised scales of pay have not been implemented so far. The proposal for revision of scales of pay is under the consideration of the Ministry of Information Technology.

DIVERSIFICATION

It has been stated in the Annual Report that the company has been making vigorous efforts to introduce newer products for the Telecom Sector. Towards this end, the company signed MOUs with M/s. Marconi Communications SpA, Italy and Himachal Futuristic Communications Ltd. (HFCL), Solan, India for the Manufacture of STM-I and STM-16 Transmission equipment for DOT. An MOU was also signed with M/s. Tailyn Communication Company Ltd., Taiwan for manufacture of Digital Loop Carrier Systems on STM-I, SDH Technology for which type approval was stated to be in progress.

With regard to the signing of the MOUs by SCL with Marconi Communications, and the salient features of the each of the MOUs signed by the Company, it has been stated that the Company signed MOU with Marconi Communications, Italy, Himachal Futuristic Communications, Limited (HFCL), Solan for the manufacturer of STM-1 transmission equipment for DOT (now BSNL) on 10th June 2000. Another MOU for the manufacture of STM-16 equipment was signed on 20 June 2000 with these parties. The Company signed MOU with Tailyn Commiunication, Taiwan for manufacture of Digital Loop Carrier System on STM-1, SDH Ring on 20th September 1999.

SALIENT FEATURES OF THE MOUs SIGNED

(i) MOU for STM-1 Transmission Equipment:

The MOU was signed to seek technical support of both M/s. Marconi and M/s HFCL to bid in the tender issued by DOT on April 2000 for supply of STM-I equipment. under this MOU, in the event SCL was successful in this tender, Marconi was to supply equipment in SKD form to SCL through HFCL who have a technology transfer agreement with Marconi for this equipment. however, DOT's counter offer for supply of the equipment was not found viable, and, therefore, the MOU has remained a non-starter.

(ii) MOU with STM-16 Equipment:

The MOU is similar to that of STM-I equipment. Evaluation of the bids for supply of this equipment is in progress by BSNL.

(iii) MOU with Tailyn Communication:

The MOU authorise SCL to manufacture, supply, maintain and service Digital Loop Carrier Systems on STM-1 SDH Ring to cater to Indian requirements by importing sub-assemblies/assemblies from Tailyan. M/s. Tailyan Communication is to provide all technical support and documentation for getting the type approval and also impart necessary training to SCL personnel for operations and maintenance of the Systems. Type approval of the equipment has already been approved and the company shall bid in future tender of BSNL.

Given the volume of demand presented by the above mentioned telecom equipment, even a small portion of this market (say 5%) shall increase the turnover of the company by Rs. 10-15 crore.

When asked about the company's plan for diversification to cater to new areas, the Committee were informed that the company has indeed identified new business areas notably Electronic Energy Meters, Smart Cards, VLSI Design education courses, MEMs (Micro Electro Mechnical Systems). Significant opportunities exist in these emerging areas and the company is making all out efforts to secure a reasonable market share in these areas.

INFORMATION TECHNOLOGY

In the field of Information Technology identified as another logical area of diversification, the company signed on agreement with M/s. Genesys International Corporation Ltd, (GICL), Bangalore for working together particularly in the area of Geographical Informatic System(GIS). A Memorandum of Understanding envisaging promotion of Information Technology based products and solutions in the State of Punjab, Haryana, Himachal Pradesh, J&K and the Union Territory of Chandigarh has also been signed with C-DAC, Pune.

When asked in what way your company has been benefited by signing the MOU with GICL in the area of Geographical Information System and also the salient features of the MOU signed, the Committee were informed that the MOU signed with Genesys International Corporation (GICL), Bangalore seeks requisite support to SCL in terms of material, manpower by GICL for execution of projects primarily in the area of Geographical Informatic System (GIS) which is an emerging business in IT field. The company is already executing an order for computerisation of land records of Fatehpur Sahib District with the technical support from GICL. The total cost of the project is about Rs. 63 lakh and the progress made so far is about 25%. The project is expected to be completed by December 2001. The Authorities at Fatehpur Sahib are quite satisfied with the job

being executed. The successful completion of this project is expected to pave way for more projects not only in the state of Punjab but other states as well where the company is following up with the concerned authorities.

When asked about the major achievements with regard to promotion of IT in various states as envisaged in the MOU signed by your company with C-DAC,the Committee have been informed that the MOU signed with C-DAC, Pune envisages promotion of Information Technology based products in the State of Punjab, Haryana, Himachal Pradesh, J&K and the Union Territory of Chandigarh in the following areas:

- E-Governance Software solutions like Land Revenue Records, Stamp and Registration, Works Management etc.
- Handprint recognition and Data Management
- GIS based solutions
- Indian Language Tools
- Computer Training of Govt. employees
- Any other suitable business area with mutual consent in writing.

However, the MOU has been a non-starter as the envisaged business opportunities have not matured yet.

FOREIGN EXCHANGE OUTGO

It has been stated in the Annual Report that during the year 1999-2000, the company used foreign exchange for various purposes which are as follows:

1.	Raw Materials, Consumable and Finish products etc. (FOB)	Rs. 2182.98 lakh
2.	Capital goods (FOB)	Rs. 102.33 lakh
3.	Foreign Travel and others	Rs. 66.50 lakh

It has also been stated that there has been no foreign exchange earning during the year (1999-2000).

When asked to furnish details of the foreign exchange earnings and its outgo of the company during the last 3 years, it has been stated that the foreign exchange earnings and its outgo of the company during the last 3 years is as under:-

(Rs. in lakh)

	Earnings	Out go
1997-98	-	1413.49
1998-99	-	1647.40
1999-2000	-	2351.81

When asked about the reasons for no foreign exchange earnings during the year 1999-2000, it has been stated that the company's business being currently focused on the domestic market no foreign exchange earnings have resulted during the said period. Reason for not being able to compete in the overseas market is due to better economies of scale enjoyed by MNCs on account of the bigger size of their manufacturing facilities (SCL's facility is about $1/12^{th}$ the size of any international sized plant), technology level and their wide network of operations globally.

When asked about the company's export performance during the last 5 years and the actions taken or proposed to be taken to boost the export performance of the company, it has been stated that there has been no export from the company during the last 5 years as the Company's business being currently focused on the domestic market. Access to the overseas market was envisaged through Joint Venture Partnership which, however, has not materialised.

When further asked about what effort has been made for exports and do our Embassies help in the matter, the Committee were informed that the Company's business is currently focussed on the domestic market. Reasons for not being able to compete in the overseas market is mainly due to better economies of scales enjoyed by MNCs on account of bigger size of their manufacturing facilities (SCL's facility is about $1/12^{th}$ of the size of any international plant), technology level and their wide network of operations globally. Access to overseas market was envisaged through JV partnership which has however not materialised. The embassies have been extending help whenever requested.

On the question of whether import of Raw Materials and other Capital Goods was inevitable and whether the R&D be broad-based to facilitate import substitution and export promotion, the Committee were informed that sine raw material and consumables used in wafer fabrication viz., Silicon Waters, Special Grade Semiconductor chemicals/gases etc. and other processing capital equipment are not manufactured locally, the import of these goods is inevitable. The R&D at SCL is primarily engaged in the development of process/design technologies and products and not in the development of raw materials and capital equipment required for wafer fabrication.

JV PARTNERSHIP

It has been stated by the company that the JV partnership envisaged at the time of RCE-II for improving viability has not materialised despite best efforts made by the company over the last few years.

It was also stated that the reasons for a comprehensive JV partnership involving both wafer fabrication and design not having materialised are due to the fact that the domestic market is not attractive enough in view of its limited size and

its fragmentation into various types. The relatively weak infrastructure of our country is also stated to be one of the reasons.

When asked what kinds of JV partnership was envisaged at Revised Cost Estimate Stage II, it was stated that the objectives of the envisaged JV Partnership have been to obtain (i) international market access, (ii) differential know-how and (iii) funds for capacity and capability upgradation, with a view to improve the commercial performance of the company. Despite best efforts made by the company over the years the envisaged Joint Venture Partnership has not materialised, perhaps for the reason that the domestic market is not attractive enough for the overseas partners in view of its limited size and fragmentation into various types in addition to relatively weak infrastructure of the country.

With regard to the advice/suggestion of the Administrative Ministry in the matter, the Committee were informed that the efforts made by the company in securing JV Partnership and the results thereof have been brought to the notice of the Administrative Ministry from time to time which has also reported the status to the Cabinet in this regard. However, there has been no specific advice/suggestion from the Administrative Ministry in the matter.

When asked to furnish details of the companies with whom SCL want JV Partnership now and ways in which the JV Partnership is likely to help the company, the Committee were informed that the SCL has been looking for Joint Venture Partnership with overseas Semiconductor Companies possessing necessary expertise in the field who could have helped SCL in achieving the objectives stated at above.

SMART CARDS

It has been stated in the brief that a prospect lies in offering emerging Market such as Smart Cards to SCL which would facilitate attracting a JV partner(s). It was also stated that many countries such as France, China and more recently Malaysia have introduced Smart Cards under Government Control.

When asked to explain what does Smart Card refer to and in which way it is going to boost the business prospects of SCL, the Committee were informed that Smart Card is basically a Plastic Card of the size of a normal Credit Card with an IC embedded in it. It is used widely in Europe, China, Singapore, Korea etc. in a variety of applications such as ID, PDS, Pre-paid Phone Cards, Banking and payment systems. The advantage of Smart Card over the conventional plastic cards is in the security that they afford. In our country too the use of Smart Cards has started taking off with the introduction of smart card based Driving licences by some States. Security being a paramount importance, the company has been suggesting to the Govt. that it would be desirable to have the Smart Cards manufactured through a Govt. owned manufacturing unit. Given its technical background for the manufacture of chip/micromodule and being a CPSU, SCL is uniquely placed to manufacture Smart Cards for various applications in the country. The support of the Govt. in offering the market of Smart Cards (which is estimated at Rs. 25 crore in 2002-03 and going upto Rs. 100 crore in 2004-05) shall go a long way in securing the future of the company and also enable it to secure JV Partnership as a result of such a market clout/Govt. support.

When the Committee desired to know about the case studies of the prospect of Smart Cards which has already been introduced in France, China and Malaysia and company's perceptions on the introduction of such smart card facility

in India, the Committee were informed that the company has indeed done study of the reports on Smart Card Projects introduced in countries like Malaysia, Singapore, South Korea, China available in various journals, periodicals on Smart Card technology etc. It has been observed that in all these countries Smart Card Projects supported by respective Govt. agencies have been introduced at national level mostly for ID/Social Security and also for applications such as Driving licence, PDS, health care etc. The basic objective of introduction of the Smart Cards in these countries is to provide the public with added convenience, security and multiple applications on a single card. We believe that the introduction of Smart Cards in a country like ours will be an effective tool in providing better governance to the citizens of this country and benefit to the common man. As an example, in an application like PDS, Smart Cards would be quite effective to cut fraudulent use. Similarly, the Smart Card technology would play a key role in National Security, being secure and taper-proof. In brief, the Smart Card technology represents the most appropriate IT-citizen interface. It may be pertinent to mention here that indigenous availability of Smart Cards shall also go a long way in crystallising one of the major recommendations of the National Task Force on Information Technology.

When the Committee further desired to know the current state of the proposal made to MHA to issue National ID Card, the Committee were informed that the proposal submitted to MHA for National ID Card has, understandably, not progressed. Recently (May 2001), a letter has been written to the Union Home Secretary inviting his attention to a news its about one of the recommendations made by Govt. on national security system regarding introducing national identity cards. Request has been made to consider using chip based Smart Cards as ID cards

for the proposed ID cards on account of their stated advantages over conventional plastic card. Secretary's attention was also invited to SCL/NIC proposal submitted to MHA on participation in National I-Card. The letter also seek Govt's support in introduction of multi purpose Smart Card based national ID cards through SCL.

VIGILANCE ACTIVITY

It has been stated in the Annual Report that 'Preventive Vigilance' continued to be the main focus of vigilance activities. It has also been stated that the company also takes recourse to 'punitive vigilance'.

With regard to number of vigilance cases reported during each of the last 3 years and what punitive actions have been taken against the corrupt officials, it has been stated that the details of the vigilance cases reported during each of the last three years and the punitive action taken against the earring officials is given below.

Year	**No. of Vigilance Cases reported**	**Nature of Punitive Action**
1998-99	7	Cases where financial loss was caused to the company, recovery of the said amount alongwith penal interest was made. Also, wherever required, the charged officials were given the punishment of withholding of increment/promotion depending upon the seriousness of the charges.
1999-00	5	- Censure and withholding of promotion for misconduct in one case - Criminal case filed in the court in a case of misuse of funds by an ex-employee of the company - Note of caution issued for administrative lapse in a case
2000-01	5	Disciplinary proceedings in one case is in progress; in two cases improvements in procedures/system suggested have been taken up for implementation while the reports in remaining cases are being examined.

NEW PRODUCTS

The new products introduced by the company in the last five years are:

VLSI Divisions

i) Signal Processing Chip
ii) ASICs (PSP, IIR Filter, DMAC, Plan Aren, CCD Linear Imager Devices)
iii) Hearing Aid Module
iv) Single Chip Telephone IC (under approval by customer)
v) Tone Pulse Switchable Dialler (- do-)

Systems Division

i) Optimux range of products for Telecom Sector
ii) Electronic Energy Meter 1
iii) Digital Pair Gain System (DPGS)
iv) SDH Instrument
v) Professional Boards for Air Force.

RECOMMENDATIONS / OBSERVATIONS OF THE COMMITTEE

NEED FOR FINANCIAL SUPPORT TO SCL FROM GOVERNMENT

1. **The Committee note that the Semiconductor Complex Ltd. (SCL) has been set up for developing and sustaining indigenous capability in micro-electronics for strategic reasons, keeping in mind the broader consideration of national self-reliance in strategic areas. The Company has been fulfilling this objective of self-reliance by way of development and supply of a variety of products for strategic sectors which include Atomic Energy, Space and Defence. The Committee further note that the Company has gained enough expertise to possess necessary control over this strategically important technology, as it has developed various process technologies and design technology through intensive in-house R&D efforts. However, the Committee are concerned to note that the physical and financial performance of the Company has been adversely affected by lack of market for its products in India and whatever domestic market that exists for its products now is very small and**

fragmented and there was no advantage of the economies of scale due to this small market. Apart from these factors, competition from the MNCs and dumping of products by other countries due to unbridled liberalisation in imports have also affected the Company, necessitating immediate governmental intervention by way of financial support and other means. The Committee, therefore, recommend that the Government should continue providing budgetary support to the SCL in order to cover the shortfall in its revenue expenditure for the continuation of its activities which are mainly in the strategically important areas. The Committee feel that the general policy of providing no financial support to Public Undertakings from the Government should not be made applicable in the case of SCL, keeping in view the strategic importance of the Company which is very crucial to our self-reliance. The Committee desire the Government to appreciate the fact that micro-electronics constitutes a vital ingredient of modern electronics system and it has been acknowledged the world over to be the core strategic technology for an Information Technology-based society. Indeed micro- electronics is seen as the locomotive for accelerating the economic growth of any nation in the years to come. The Committee desire that the Government should look at the performance of SCL only from the point of view of the role being played by SCL in providing the much needed technology that has been withheld from India by other countries in strategic areas instead of assessing its performance based only on the quantum of profits earned by the Company. The Committee, therefore, further recommend that more investment should be made in SCL to develop sub-half micron technology for the up-gradation of its equipments and its super clean rooms so that the Company continues to participate in critically important projects of the strategic sector which have invited embargoes from the developed countries. In this connection, the Committee wish to point out that the Scientific Policy Resolution announced

on March 4, 1958 rightly states, inter alia, that Science and Technology can make up for deficiencies in raw-materials by providing substitutes and, therefore, it is the duty of the Government to foster, promote and sustain, by appropriate means, the cultivation of science and scientific research in all its aspects, Therefore, the Committee recommend that the Government, keeping in view this pronounced policy aim, should provide financial support to SCL to secure for the people of this country all the benefits that can accrue from the acquisition and application of scientific knowledge and for taking a quantum jump in technology in the crucial area of micro electronics. Such a step on the part of the Government to make further investments in SCL would be very much in keeping with the Industrial Policy Statement of 1991 which states that the Technology Policy of the Government is to encourage industries to enhance human skills, to upgrade existing technologies to comparable international levels as well as to attain such levels for newer and emerging technologies.

NEED TO CONSOLIDATE ALL GOVERNMENT OWNED I.C. FABRICATION FACILITIES

2. The Committee note that the I.C. (Integrated Circuit) Fabrication in the country is done mainly at the Semiconductor Complex, Chandigarh, Bharat Electronics Ltd., Bangalore, VLSI Facility at ITI, Bangalore and at Gallium Arsenade Enabling Technology Centre (GAETEC), Hyderabad. The Committee further note that the process line at BEL is based on bipolar technology, while SCL and ITI have their technology based on CMOS. The Committee feel that there should be a consolidation of all Government owned/sponsored I.C. Fabrication Facilities mentioned above under one umbrella, as it would establish a synergy for effective and optimum utilisation of the available resources, particularly, in the light of the highly capital intensive nature of this industry and in view of the limited resources that are available in the country. The Committee, therefore, recommend that the Government should consider the question of consolidation of/merger of the activities of these Companies so that duplication of efforts is avoided and the limited resources at the command of the country are put to optimum utilisation.

GOVERNMENT SUPPORT FOR R&D EFFORTS

3. The Committee note that at the international levels, the current state-of-the-art technology in Micro-electronics is able to achieve the production of 0.25 micron technology products, while the process technology at SCL is only at 1.2 micron stage. The Committee understand that the Company, with its experience and expertise developed over the years, possesses the necessary capability to develop sub-half micron technologies, the development of which require up-gradation of equipments and setting up of state-of-the-art facilities by investing more funds. SCL now obviously lags behind others in the matter of developing the globally used cutting edge technologies. Besides, the rate of obsolescence of technology is very rapid in this hi-tech area, due to which there has to be continued R&D efforts with high investments to upgrade the existing technology. The Committee note that only 5.65% of the total expenditure of the Company last year was on R&D and the level of expenditure on R&D by the Company is primarily dictated by the R&D revenue grant made available by the Government. However, this grant will not be available beyond 2000-01. The Committee have been informed that the Company has requested for continuation of R&D grant of the order of Rs.5 crores a year to enable the Company to continue its R&D activities as planned. Further, SCL has also submitted its projections for R&D grant for the Tenth Five Year Plan period (2002-07) to the Government for its consideration. The Committee strongly recommend that the Government should accede to the request of the Company for continuation of R&D grant beyond 2000-01 and into the Tenth Plan period to enable the Company to carry forward its R&D activity for the development of the new technology and products to meet the strategic needs of the country as well as to meet the commercial demands.

NEED FOR PLACEMENT OF ORDER ON SCL FOR SMART CARDS

4. The Committee note that the SCL in collaboration with NIC has submitted a proposal to the Ministry of Home Affairs for the supply of the National Identity Card which is a kind of multi-purpose Smart Card. The Smart Card is basically an Identity Card of the size of a normal Credit Card with an IC embeded in it. This Smart Card can be used for applications such as Identity, Ration Card, Driving Licence, Health Care, Banking etc. The advantage of this Smart Card over the conventional plastic Identity Card is that they are tamper-proof and offer full-proof security. The Committee feel that SCL is uniquely placed to manufacture the Smart Cards for various applications in the country, since it has the necessary technical background for the manufacture of chip/micro module, besides, being a Central Public Undertaking. The Committee understand that the market of Smart Cards proposed to be offered by the Government will be in the order of Rs. 25 crores in 2002-03 and would go upto Rs.100 crores in the year 2004-05. Since the manufacture of Smart Cards through SCL would provide government control, standardisation, security and reliability in the matter, it is desirable that these are manufactured in SCL. The Committee, therefore, recommend that the Government should offer the market of Smart Cards to SCL. The Committee consider that such a step will be all the more necessary in order to make SCL a viable unit and to sustain it in future and to insulate it from operational losses.

PROTECTIVE MEASURES IN FAVOUR OF SCL

5. The Committee note that electronic energy meters manufactured in China have been dumped into India and it has affected the business of SCL. The quality of electronic energy meters imported from China is inferior and, therefore, the consumers also stand to lose when they purchase such meters as they have to make repetitive purchases of the same item, resulting in huge foreign exchange outgo. The Committee feel that there are several other such products which are being dumped into Indian market and the indigenous industry has been harmed by such imports. The Committee, therefore, recommend that the Government should urgently initiate steps to protect SCL by preventing the dumping of inferior I.C. based products, especially, the electronic energy meters into India. The Committee further recommend that the Ministry of Power may be requested to pursuade all the State Electricity Boards and the Electricity Distribution Companies to accord price preference and purchase preference in the matter of acquisition of electronic energy meters and they should make the use electronic energy meters mandatory for every consumer in order to reduce revenue leakage substantially.

NEED FOR DEVELOPING A SET UP FOR MARKET INTELLIGENCE IN SCL

6. The Committee note that one of the main reasons for the decline in capacity utilisation in SCL in the recent years was due to the fall in demand in one of the products manufactured by SCL. The Committee find that there is no organised set up available with SCL to undertake market research and to gather market intelligence in order to assess the demands for various products both in India and abroad. The Committee feel that urgent measures are required to create a proper set up for this purpose so that SCL can undertake production of only those items for which there will be a steady demand. The Committee recommend that SCL should take immediate steps to create such a set up in their Company or to have an effective alternative arrangement for the purpose of conducting market research and market intelligence.

INTRODUCTION OF VRS

7. The Committee note that SCL had got a study conducted through Punjab University School of Business and also through a Consultant on the matter of organisational structure and manpower requirement of the Company. The Committee have been informed that these studies revealed that some manpower, mostly on non-executive level, have not been gainfully employed and with the introduction of manufacture of new products like electronic energy meters, such manpower is beginning to be utilised more gainfully now. Still, SCL is contemplating to introduce VRS to make the organisation lean and efficient and has submitted a proposal for the approval of the Government. The Committee recommend that the proposal submitted by SCL should be considered favourably by the Government and a decision in this regard should be taken within three months from the date of presentation of this Report to Parliament.

ATTRITION OF EXPERIENCED AND TRAINED ENGINEERING MANPOWER FROM SCL

8 The Committee note that one of the main reasons for low capacity utilisation in SCL is the difficulty faced by the Company in the development of new products which had arisen due to attrition of experienced and trained engineering manpower from the Company in the recent years. The attrition of talented manpower is mainly on account of the current levels of low remuneration in SCL which are significantly less than the package offered by the Private Sector Companies and MNCs operating in the country. The Committee find that the pay of the employees of the Company is based on scales that were fixed in the year 1992 and the remuneration drawn by the Scientists/Engineers of the Company is very much less than even that meant for comparable jobs in Government Sector and in the Government Undertakings. The Committee find that the revised scales of pay due to the employees with effect from 1.1.1997 has not been implemented so far and a proposal in this regard has been submitted by the Company to the Administrative Ministry for approval. The Committee feel that there is an urgent need to introduce the new scales of pay with effect from 1.1.1997 for all categories of employees of SCL so that the Company is able to retain its experienced manpower and the research capabilities and market competitiveness of the Company are enhanced. The Committee, in this connection, wish to draw the attention of the Government to the Scientific Policy Resolution of 1958 which, inter alia, states that the Government has to accomplish the aims of the Scientific Policy by offering good conditions of service to Scientists by according them an honoured position and by taking such other measures as may be deemed necessary from time to time. Therefore, the Committee desire that the Government should take immediate steps to approve the revised

scales of pay to comply with the Policy pronouncements of the Government, as they consider SCL essentially a scientific organisation and not a mere industrial undertaking. The revision of pay is all the more necessary, keeping in view the service being rendered by SCL to the strategic sector which has helped in the successful accomplishment of important national projects being implemented by strategic Departments, such as, Defence, Space and Atomic Energy. Therefore, the Committee feel that there is an imperative urgent need to take a quick decision on this matter so that country achieves self-reliance in the face of various embargoes from developed countries and also saves valuable foreign exchange, as the country would have to pay exorbitant prices for various I.C. technological inputs if they are to be acquired from overseas sources. The Committee recommend that a decision on this matter should be taken within three months from the date of presentation of this Report and the Committee should be apprised of the decision taken in this matter.

ANNEXURE – I

TOUR AS ACTUALLY PERFORMED BY THE COMMITTEE ON PUBLIC UNDERTAKINGS TO CHANDIGARH AND SHIMLA FROM 2ND JULY, 2001 TO 6TH JULY, 2001

(MEMBERS ASSEMBLED AT CHANDIGARH)

DATE & DAY	TIME	VISIT & DISCUSSION
2.7.2001 (Monday)	1500 hrs	Discussion with the Officers of Housing & Urban Development Corporation
	1700 hrs	Discussion with the Officers of National Building Construction Corp. Ltd.
		(NIGHT HALT AT CHANDIGARH)
3.7.2001 (Tuesday)	0915 hrs	Discussion with the Officers of Semi-Conductor Complex Ltd
	1430 hrs	Departure for Shimla by Road
	1800 hrs	Arrival Shimla
		(NIGHT HALT AT SHIMLA)
4.7.2001 (Wednesday)	1200 hrs	Discussion with the Officers of Rural Electrification Corporation Ltd.
		(NIGHT HALT AT SHIMLA)
5.7.2001 (Thursday)	1000 hrs	Discussion with the Officers of National Fertilizers Ltd.
		(NIGHT HALT AT SHIMLA)
6.7.2001 (Friday)	1000 hrs	Discussion with the Officers of Nathpa Jhakri Power Corp. Ltd
		DISPERSAL

ANNEXURE – II

COMPOSITION OF THE COMMITTEE ON PUBLIC UNDERTAKINGS WHICH VISITED CHANDIGARH AND SHIMLA FROM 2ND TO 6TH JULY, 2001

S. NO.	NAME	DATE OF JOINING	DATE OF LEAVING
1.	Prof Vijay Kumar Malhotra, Chairman	4.7.01 SHIMLA	7.7.01 SHIMLA
2.	Shri Prasanna Acharya	2.7.01 CHANDIGARH	6.7.01 SHIMLA
3.	Prof. S. P. Singh Baghel	2.7.01 CHANDIGARH	6.7.01 SHIMLA
4.	Shri Sudip Bandyopadhyay	3.7.01 CHANDIGARH	7.7.01 SHIMLA
5.	Shri Ram Tahal Chaudhary	2.7.01 CHANDIGARH	7.7.01 SHIMLA
6.	Shri Ajay Singh Chautala	2.7.01 CHANDIGARH	2.7.01 CHANDIGARH
7.	Shri Shiv Raj Singh Chauhan	2.7.01 CHANDIGARH	7.7.01 SHIMLA
8.	Smt. Sangeeta Kumari Singh Deo	3.7.01 CHANDIGARH	5.7.01 SHIMLA / 6.7.01 CHANDIGARH
9.	Shri Rajiv Pratap Rudy	2.7.01 CHANDIGARH	6.7.01 SHIMLA
10.	Shri Tarit Baran Topdar	3.7.01 SHIMLA	5.7.01 SHIMLA
11.	Shri Suresh Kalmadi	3.7.01 CHANDIGARH	5.7.01 SHIMLA / 6.7.01 CHANDIGARH
12.	Shri B. P. Singhal	2.7.01 CHANDIGARH	6.7.01 SHIMLA
13.	Smt Ambika Soni	2.7.01 CHANDIGARH	3.7.01 CHANDIGARH
14.	Shri Ranjan Prasad Yadav	2.7.01 CHANDIGARH	7.7.01 SHIMLA

SECRETARIAT

1.Shri S Bal Shekar,	Director
2.Shri L. N. Gaur,	Under Secretary
3.Shri Girdhari Lal,	Executive Asstt.

ANNEXURE – III

LIST OF OFFICIALS OF SEMICONDUCTOR COMPLEX LTD. WHO WERE PRESENT DURING DISCUSSION WITH THE COMMITTEE ON PUBLIC UNDERTAKINGS AT CHANDIGARH ON 3.7.2001

1.	Dr. M. J. Zarabi,	Chairman & Managing Director
2.	Shri M. M. Sobti,	Director (Tech)
3.	Dr. D. N. Singh,	Executive Director (VLSI)
4.	Shri S. K. Ambarlar,	DGM (SPC)