

REPORT

XV

DISINVESTMENT COMMISSION

NOVEMBER
2002

'Trikoort - I', IInd Floor
Bhikaiji Cama Place, R K Puram
New Delhi - 110066

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Note: The Tables contained in this Report are based on information received from the management of the PSEs and other sources.

PART - A

1. INTRODUCTION

The Disinvestment Commission was reconstituted vide Government of India, Ministry of Disinvestment Resolution No.11012/1/2000-Admn. dated 24th July, 2001.

Earlier, during 1996-1999, the Commission made recommendations in respect of 58 PSEs which had been referred to it by the Government. Out of these 58 PSEs, following four were referred back to the Commission for a fresh review:

- i. Neyveli Lignite Corporation Ltd. (NLC)
- ii. Manganese Ore (India) Ltd. (MOIL)
- iii. Rail India Technical & Economic Services Ltd. (RITES)
- iv. Projects & Equipment Corporation Ltd. (PEC)

The Commission submitted its recommendations in respect of these four PSEs in Report XIII. Government has already taken the decision to disinvest 51% shares in MOIL.

In Report XIV submitted in September, 2002, the Commission sent recommendations in respect of the following four Public Sector Enterprises:

- i. IRCON International Ltd. (IRCON)
- ii. Central Inland Water Transport Corporation Ltd. (CIWTC)
- iii. Cochin Shipyard Ltd. (CSL)
- iv. Hindusthan Shipyard Ltd. (HSL)

This Report (XV) contains recommendations in respect of the following:

- (i) Dredging Corporation of India Ltd. (DCI)
- (ii) National Projects Construction Corporation Ltd. (NPCC)
- (iii) Semiconductor Complex Ltd (SCL).
- (iv) Telecommunications Consultants India Ltd. (TCIL)

All these reports are available in Disinvestment Commission's website:
www.disinvest.gov.in.

Currently, the following Public Sector Undertakings are under study:

- i. Bharat Sanchar Nigam Ltd.,
- ii. Central Mine Planning & Design Institute Ltd.,
- iii. Cotton Corporation of India Ltd.,
- iv. Hoogly Dock & Port Engineering Ltd.,
- v. Indian Medicines Pharmaceuticals Corporation Ltd.,
- vi. Jute Corporation of India Ltd.,
- vii. Mahanagar Telephone Nigam Ltd.,
- viii. National Buildings Construction Corporation Ltd.,
- ix. National Small Industries Corporation Ltd.,
- x. Power Finance Corporation Ltd.,
- xi. Rajasthan Drugs & Pharmaceuticals Ltd., and
- xii. Rural Electrification Corporation Ltd.

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PART - B

2. SPECIFIC RECOMMENDATIONS

2.1 DREDGING CORPORATION OF INDIA LTD. (DCI)

INTRODUCTION

Dredging Corporation of India Ltd. (DCI), a public sector undertaking under the Ministry of Shipping (MoS), is engaged primarily in providing dredging services to major and minor ports in the country. It also serves the Indian Navy.

DCI was incorporated as a fully owned Government Company for undertaking dredging operations, as a private limited company and it commenced operations in April 1977. It was subsequently converted into a public limited company in 1992. Its authorised and paid up capital, as on 31.3.2001, were Rs.300 million (mn.) and Rs.280 mn. respectively. GoI disinvested its shareholding to the extent of Rs.4.02 mn. (face value), which works out to 1.44% of the total paid up capital. The shares are listed in the Stock Exchanges of Delhi, Mumbai and Kolkata. The proportion of floating stock being very low, DCI's shares are not actively traded on the stock exchanges.

With registered office in Delhi, and Corporate/Head office in Visakhapatnam, DCI has project offices at Kolkata, Haldia, Paradip, Visakhapatnam, Kochi, Mangalore, Mumbai and Kandla.

With 12 dredgers and a dredging capacity of 74.75 million cubic meters per annum (mcmpa), DCI, which is the seventh largest Dredging Company in the world, offers two main services to its clients: Maintenance dredging and capital dredging.

Besides, DGI undertakes hydrographic surveys for certain organisations as per their requirements.

The company has been awarded 'mini-ratna' status by GoI, thereby being bestowed with enhanced autonomy with regard to capital expenditure, establishment of joint ventures, overseas offices and technological alliance.

It is a co-promoter of Dredge Repair Company India Ltd. (DRCI) along with IHC (Holland), Hooghly Dock & Port Engineers (a GoI undertaking) and Patel Engineering Works, Mumbai, as equal partners. DRCI was established to provide

exclusive dredge repair facilities for DCI. As required infrastructure could not be developed, DRCI was voluntarily liquidated in FY2002.

Dredging Process

Ports are primarily meant to receive ships for loading or unloading of cargo. One of the factors that contributes to the success or failure of a port is its ability to maintain required depth of water in its channels and berths so that ships operate safely and economically. To achieve and maintain the required depths of water in the channels, it is necessary to remove sand and silt at periodic intervals. The mechanical means adopted for removal and transportation of underwater material is known as dredging. Dredging is also undertaken for reclamation and soil improvement. It enables access to a port or a jetty by vessels requiring deeper draught or allows a vessel to carry a greater weight of cargo.

On the basis of nature of activity, dredging service is classified into two distinct types: viz.

- **‘Maintenance dredging’**, which involves the maintenance of depth and width of water in the existing navigational channels of ports; and
- **‘Capital dredging’**, which is required for developing new navigational channels for ports.

Dredging is also used to create underwater foundations; facilitate the emplacement of pipelines or immersed tunnel elements; construct flood control structures such as dams, dykes or levees; ensure flood defences (by improving or maintaining the discharge capacity of watercourses); and create or maintain storage capacity in water supply reservoirs.

Environmental Aspects and Regulations:

Both dredging and disposal are now carefully regulated. In addition to national and regional legislation and policies, the most widely applicable international regulatory instrument is the London Convention 1972 (LC-72), which covers the marine waters of the whole world. LC-72 recently adopted the Dredged Material Assessment Framework (DMAF), a widely reviewed and accepted approach to the assessment of suitability of dredged material for disposal at sea. Legislation controlling placement on land (and in inland waters) is based on national regulatory systems often involving a great variety of laws prepared for various waste materials,

e.g. sewage sludge, agricultural and industrial waste. Some countries are now developing regulations specifically for dredged material.

AN OVERVIEW OF THE INDUSTRY

Demand drivers

Since ancient times, waterways provided an economical and efficient way of transporting goods. In order to promote trade, ports are being expanded and new ports are being developed across the world. The size of the dredging market is, therefore, largely dependent on the port development, maintenance and expansion. The dredging market is, to a large extent, driven by the following factors: growth in world trade; deeper draught requirements; beach nourishment in coastal areas; land reclamation for low lying areas; and environmental factors.

International dredging market:

The international dredging market has been traditionally concentrated in a few European countries, especially Netherlands, Belgium and UK. It is estimated that the size of the international dredging market ranges between US\$ 4 to 5 bn. A large portion of the international dredging market is reportedly closed and protected. Countries in this category include USA, Brazil, China and Indonesia. Many countries also provide subsidies to the domestic dredging companies in the form of subsidy on dredging work carried out by them, subsidised equipment, etc. Dredging fleet registered in the country is often given preferential treatment under the cabotage law. However, this scenario is changing, with accent on more efficient Dredgers and introduction of new techniques to reduce cost.

Major players

The major players in the international market are Royal Boskalis Westminster NV, Dredging International, HAM, Jan De Nul, Ballast Nedam and Van Oord ACZ. All these players are mostly located in Europe where the markets for dredging are highly concentrated.

The industry has seen consolidation in the recent past – one example being Ballast Nedam merging with HAM. With increasing globalisation, the industry may witness further consolidation by way of mergers and acquisitions. Resorting to some form of cartelisation to synergize existing fleet strength and also to keep the competition at bay is not believed to be uncommon. Though new players,

especially from the Asian countries, are entering the dredging market, they are small in size.

The major European companies account for a large proportion of the total international dredging fleet. Responding to the demands from the clients, continuous efforts are being made to increase the size of the Dredgers, improve technology and reduce costs. Recently, with large capital dredging and reclamation projects coming up, Jumbo “Trailer Suction hopper Dredgers” with hopper capacities as large as 33,000 m³ are being deployed.

Internationally, the dredging industry is experiencing changing regional patterns. Demand in Europe and North America, which used to be concentrated in certain parts in the past (like Netherlands), has spread throughout Europe in the recent years. However, overall growth for Europe has been only marginal. Singapore and Hongkong have witnessed high levels of growth in dredging operations, which is expected to continue in the coming years.

Indian Dredging market:

The main users of dredging services in the country are major ports and the Indian navy. The domestic market is primarily confined to annual maintenance dredging of ports and Indian navy. This ‘maintenance’ dredging is more or less stabilised and has witnessed negligible growth. The Indian dredging industry has so far been dominated by DCI, particularly in the area of maintenance dredging.

Maintenance dredging carried out by major ports and quantity dredged by DCI during FY2002 are indicated below:

Table 1- Maintenance dredging in various ports

(in mn cubic metres)

Port	Requirement	Dredged by		
		DCI	Ports (self)	Others
Haldia*	22.05	19.55	2.50	—
Paradip	2.71	2.71	—	—
Visakhapatnam	1.11	1.01	0.09	—
Chennai	0.98	—	0.98	—
Tuticorin	0.00	—	—	—

...contd.

Port	Requirement	Dredged by		
		DCI	Ports (self)	Others
Kochi	9.21	8.21	1.00	—
Mangalore	6.01	6.00	0.01	—
Mormugao	3.75	—	—	3.75
Mumbai	3.06	—	—	3.06
JNPT	1.74	1.74	—	—
Kandla	3.43	3.43	—	—
Indian Navy	3.00	3.00	—	—
Total	57.05	45.65	4.58	6.81
% share	100.00	80.00	8.00	12.00

*Including Kolkata

Source: Credit Analysis & Research Ltd. (CARE)

The size of the Indian dredging industry is estimated to be around Rs.6 billion of which DCI is the major player. During the last three years, DCI had a market share of around 60 to 80% in maintenance dredging and about 30% in capital dredging. DCI had low share in capital dredging due to its limited skills in that area and absence of “nomination facility” for executing the work. For many ports in India, DCI is the agency nominated by MoS for undertaking maintenance dredging work.

Broad segments

On the basis of size of operations, the domestic dredging industry can be broadly divided into two segments:

- **High volume segment** - consisting of large players like DCI and other foreign majors. The segment caters to the requirements of existing major ports and upcoming ports and carry out dredging jobs each of which is more than half a million cubic metres by volume. Nearly all the global dredging majors have their active presence in this segment.
- **Mid and low volume segment** - consisting of small Indian dredging companies like Dharti Dredging and Construction Company, ABC and Maldar Dredgers, catering to the dredging requirement of State Maritime Boards, Inland Waterways Authority, private ports and captive jetty operators with dredging volume ranging from 0.05 million to 0.5 million cubic metres.

With more emphasis being given on Inland Waterways, Indian dredging companies active in the mid volume segment may have better opportunities in this sector. Development activities taken up by existing as well as upcoming ports to enhance channel depth for accommodating large size vessels are likely to bring considerable opportunities as well as fierce competition in the Indian dredging sector.

Demand and Supply

The dredging needs of major ports, navy and other maritime requirements were mostly met by DCI whose capacity was sufficient to meet the domestic needs. The ports, Indian Navy and DCI together discussed and finalised the deployment programme of Dredgers for annual maintenance dredging. Even after the liberalisation of the Indian economy during 1991, care was taken to ensure that DCI's capacity was fully utilised and permission was given for engagement of outside agencies only to meet the shortage in capacity with DCI. This arrangement of 'nomination' for maintenance dredging in favour of DCI continued upto 2001 ensuring that DCI's capacity was utilised.

However, in 2001, GoI decided to give the freedom to ports to go for tendering for maintenance dredging work. Nevertheless, DCI has entered into long term contracts of two to five years duration with few ports including Haldia while some other ports (like JNPT) have decided to call for tenders, opening up the doors to foreign majors leading to increased competition.

The working group for 10th plan has projected a likely increase in maintenance dredging requirement due to expansion activities in existing ports and new ports coming up at state government levels. As per the projections of the working group, the demand from major ports, Indian navy and state ports is expected to be 68 mcmpa between FY2003 and FY2007. DCI has the dredging capacity to meet this maintenance dredging requirement. However, its market share would depend on its ability to compete with the foreign dredging companies in a cost-effective manner.

Regulatory Framework

A large portion of the international dredging market is closed and protected. In line with global trends where dredging services are generally statutorily governed, the dredging industry in India is largely regulated by the Indian Merchant Shipping Act. Overall, the dredging industry falls under the purview of MoS and has to follow the guidelines issued by Directorate General (DG), Shipping.

Till the early 1990s, competition from foreign dredging companies was limited in view of the requirement of prior license from GoI for operating in India. However, of late, many foreign countries have started operating in India through the process of competitive bidding. As per DG shipping guidelines under provisions of Cabotage Law, an Indian flag vessel is given the first right of refusal to match the price of the lowest bidder in case a foreign flag vessel happens to be the lowest bidder. In case DCI happens to be the lowest bidder, then it is given a price premium of 10%.

Physical Performance

Capital dredging works undertaken by DCI have been negligible with maintenance dredging constituting major portion of its total dredging activity. In FY2002, revenues from capital dredging works undertaken by DCI were about 8% of the total income.

Over the years, the country's dredging requirements have been mostly in the area of maintenance dredging. With little activity in setting up of new ports, there has been marginal growth in the quantum of capital dredging required. DCI has accordingly concentrated its efforts on maintenance dredging and the fleet largely comprised Trailer Suction hopper Dredgers (TSDs) to suit maintenance dredging requirements. As against this, internationally capital dredging requirements dominated the market with the result that the fleet profiles of International majors were skewed in favour of Cutter Suction Dredgers (CSDs).

Though DCI has two CSDs that are useful for capital dredging, it has not been able to develop fully the skill sets required for capital dredging. With a view to developing the skill sets for capital dredging, DCI has recently chartered its Dredge – Acquarius to a foreign dredging company on wet lease.

Fleet profile

DCIL had a fleet of ten TSDs and two CSDs apart from other ancillary crafts, as on March 31, 2002.

The following is the age profile of DCI's Dredgers:

Table 2 - Age profile of fleet

Age	No. of Dredgers
> 25 years old	3
20 – 25 years	2
10 – 20 years	4
5 – 10 years	Nil
< 5 years	3

Source: CARE

The average age of DCI's fleet is around sixteen years¹. Due to their age and low residual economic life, the company does not consider it to be prudent to incur any major expenditure on the 5 Dredgers more than 20 years old. However, since no private Indian companies have modern Dredgers, DCI is confident of continuing their deployment economically.

The fleet of foreign operators is highly versatile in terms of size and technology. Also, the foreign operators have a practice of recovering the cost of a Dredger from one or two large projects. Thereafter, these companies are reported to operate these Dredgers for new projects where they can quote very low rates, which makes it difficult for players like DCI to compete with these companies.

Pricing policy

The price for a dredging contract is usually quoted using one of the following three methods.

Daily rate basis: The company charges its customers based on the number of days the Dredger has operated, irrespective of the quantity dredged. This is usually applicable in cases where the dredging activity goes on through out the year. For example, DCI has, at any given point of time, three or four Dredgers deployed at Haldia port due to the high silting in the region. Till recently, DCI had been charging its customers mostly on daily rate basis.

Per unit basis: The company charges its customers based on the quantity (volume) dredged and technical parameters like density of slurry. DCI has recently started charging its customers on per unit basis. This has, to an extent, resulted in better realisations. Further, this enhances efficiency of the operations, thereby leading to higher capacity utilisation.

1. The depreciable life as per Companies Act, 1956 for dredgers is 14 years, as against useful life of about 2 years.

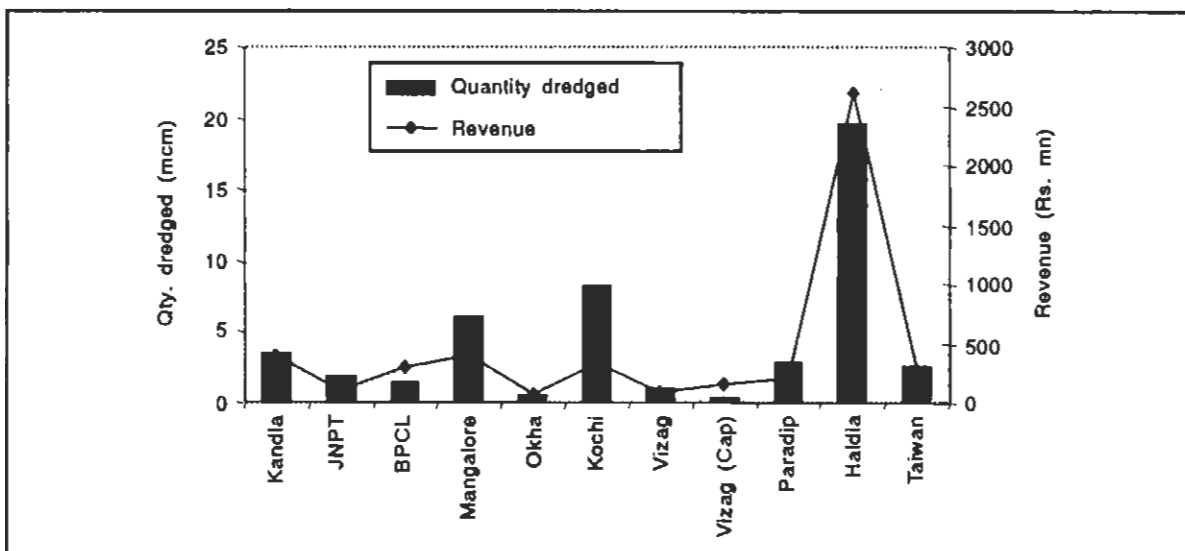
Lumpsum Basis: The price of a dredging contract is pre-negotiated and certain key requirements like minimum depth required, width, tolerance level etc. are determined. This type of contract is usually entered into in case of capital dredging. However, in such cases, the dredging company may face operational risks like unexpected soil conditions, unpredictable weather conditions, etc. DCI had faced these problems in its recent project at Taiwan.

Realisations

Over the years, DCI has been witnessing increasing price realisations and such increase was quite significant during the last three years when the company started charging its customers on per-unit basis. However, in FY2002, DCI witnessed marginal fall in realisations mainly due to increasing competition and customers demanding reduction in charges.

Major contracts DCI's revenue from the various contracts executed during FY2002 is given below:

Table 3 - Revenue from various ports



Source: CARE

More than 50% of DCI's revenues come from dredging operations in Haldia. This is due to the heavy silting at Haldia arising from the continuous flow of the Ganges. Other ports where the company carries out regular dredging activities are Kandla, Mangalore (NMPT) and Kochi.

Marketing

Since DCI was assured full deployment of its dredging capacity under the 'nomination facility', it never felt the need to undertake serious marketing activities. However, since 2001, GoI decided not to give maintenance dredging work to DCI on nomination basis and this has opened up the door to foreign majors leading to increased competition.

DCI has since adopted a pro-active marketing strategy for works in India and abroad. As a part of this strategy, DCI has assured the Indian clients that they will commence the maintenance dredging assignments as per their specific time schedule and also agreed to certain upper ceiling in the total cost of the project.

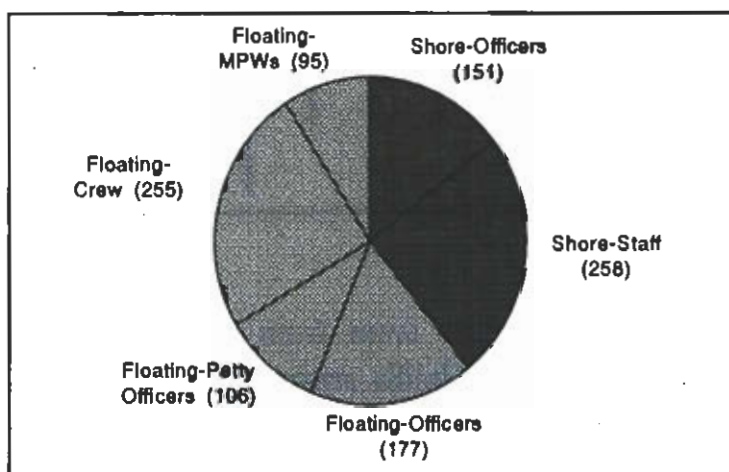
As against the previous practice of deployment of dredgers on 'daily hire' basis, DCI has now decided to deploy dredgers on 'unit rate' basis or on 'depth guarantee' / 'lump sum' basis, thereby absorbing the associated risks which had been hitherto assumed by the clients themselves. DCI has also taken action to improve the performance of all dredging equipment to its optimum capacity.

As a beginning to tap the international markets, DCI had undertaken capital dredging work at Taichung harbour in Taiwan. Efforts are being made to obtain dredging contracts in Middle East, Malaysia and Singapore.

Employee Strength

The following table depicts the employee strength and distribution at DCI:

Table 4 - Employee strength of DCI (28/2/02)



Source: CARE

DCI employs 1042 personnel comprising 409 shore establishment and 633 floating staff. It is estimated that the 'surplus' staff in the shore establishment is substantial.

Financial Analysis

A summary of profit and loss accounts and balance sheets for the last six years ended March 31, 2002 is given below:

Table 5 - Profit & Loss Account Statements for DCI

(Rs. mn)

For the Year ended	31/3/02*	31/3/01	31/3/00	31/3/99	31/3/98	31/3/97
Income from Dredging Operations	4562 (92.9)	3552 (91.9)	2693 (91.3)	2151 (95.7)	1904 (89.1)	1817 (88.5)
Other Operational Income	351 (7.1)	323 (8.4)	264 (9.0)	102 (4.5)	239 (11.2)	240 (11.7)
Less: Rebates/Discounts	3 (0.1)	11 (0.3)	6 (0.2)	5 (0.2)	5 (0.2)	4 (0.2)
A. Total Operating Income	4910 (100.0)	3864 (100.0)	2952 (100.0)	2248 (100.0)	2138 (100.0)	2053 (100.0)
a. Spares & Stores	336 (6.8)	318 (8.2)	227 (7.7)	168 (7.5)	141 (6.6)	178 (8.7)
b. Repairs & Maintenance	322 (6.6)	370 (9.6)	283 (9.6)	143 (6.3)	279 (13.1)	210 (10.2)
c. Fuel & Lubricants	1011 (20.6)	813 (21.0)	579 (19.6)	377 (16.8)	392 (18.3)	338 (16.4)
d. Personnel Cost	449 (9.1)	478 (12.4)	471 (15.9)	400 (17.8)	346 (16.2)	309 (15.1)
e. Other Operating expenses	89 (1.8)	100 (2.6)	69 (2.3)	71 (3.2)	66 (3.1)	239 (11.7)
f. Administrative Expenses	165 (3.4)	247 (6.4)	143 (4.8)	144 (6.4)	100 (4.7)	98 (4.8)
g. Provisions (dry dock g. repairs, debtors etc)	704 (14.3)	69 (1.8)	162 (5.5)	218 (9.7)	150 (7.0)	87 (4.2)
B. Total Operating Cost	3077 (62.7)	2395 (62.0)	1933 (65.5)	1521 (67.7)	1474 (68.9)	1458 (71.0)
C. Gross Profit PBILDT (A-B)	1832 (37.3)	1469 (38.0)	1018 (34.5)	727 (32.3)	664 (31.1)	595 (29.0)
D. Less Depreciation	427 (8.7)	141 (3.7)	236 (8.0)	221 (9.8)	220 (10.3)	232 (11.3)

...contd.

	For the Year ended	31/3/02*	31/3/01	31/3/00	31/3/99	31/3/98	31/3/97
E.	PBILT (C-D)	1406 (28.6)	1328 (34.4)	782 (26.5)	506 (22.5)	444 (20.8)	363 (17.7)
F.	Less Interest	130 (2.7)	51 (1.3)	51 (1.7)	63 (2.8)	59 (2.7)	68 (3.3)
G.	Profit from Operations (E-F)	1275 (26.0)	1277 (33.0)	731 (24.8)	443 (19.7)	385 (18.0)	294 (14.3)
	Add. : Other Income	94	164	367	243	244	246
	Add/(Less): Extra-ordinary Items	1	0	(0)	(0)	19	(0)
H.	Profit Before Tax	1371 (27.9)	1441 (37.3)	1098 (37.2)	686 (30.5)	648 (30.3)	540 (26.3)
I.	Less: Tax	250 (5.1)	485 (12.6)	490 (16.6)	344 (15.3)	290 (13.6)	270 (13.2)
J.	Profit After Tax (H-I)	1121 (22.8)	956 (24.7)	608 (20.6)	341 (15.2)	358 (16.7)	270 (13.2)
K.	Add/(Less): Prior Period Items	246	131	119	77	75	70
L.	Adjusted Net Profit (J+K)	1367	1087	727	418	433	340
M.	Gross Cash Accruals	2252	1166	1007	780	728	589
N.	Dividend	210	154	163	102	102	77
	Dividend (%)	75	50	50	33	33	25
O.	Retained Profit	1157	933	563	317	331	264
P.	Net Cash Accruals	2042	1012	844	679	627	512

(Figures in brackets are expressed as percentage to Total Operating Income)

FY2001-02 figures are provisional subject to CAG Audit.

Source: CARE

Table 6 - Balance Sheet of DCI

(Rs. mn)

	As at	31/3/02	31/3/01	31/3/00	31/3/99	31/3/98	31/3/97
	Fixed Assets						
	Gross Block	8057	6107	4383	3520	3419	3418
	Less : Depreciation	3313	2928	2790	2553	2335	2152
	Net Block	4744	3179	1593	967	1083	1265
	Add : Capital WIP	74	1399	866	878	187	1
A.	Total Fixed Assets	4818	4578	2459	1844	1271	1267

...contd.

As at	31/3/02	31/3/01	31/3/00	31/3/99	31/3/98	31/3/97
Inventories	101	87	99	109	91	93
Sundry Debtors	1165	1332	651	718	328	473
Cash & Bank balances	1863	882	1891	2074	2353	1861
Other Current Assets	388	382	394	204	387	339
Loans & Advances	774	679	505	636	538	516
B. Total Current Assets	4292	3363	3540	3741	3697	3282
Sundry Creditors	63	57	124	76	99	86
Deposits from contractors	76	31	16	16	14	17
Advances from customers	79	36	0	5	38	147
Other Current Liabilities	664	817	897	664	730	444
Provisions	771	370	377	452	306	220
C. Total Current Liabilities	1653	1310	1415	1212	1186	912
D. Net Working Capital (B-C)	2638	2052	2124	2529	2511	2370
E. Operating Capital Empl (A+D)	7456	6630	4583	4373	3781	3637
F. Investments	0	5	5	5	5	5
G. Total Capital Empl (E+F)	7456	6635	4588	4378	3786	3642
Less : Loan Funds (Unsecured)						
a. Loans from GOI	80	100	120	140	160	180
b. Loans from Foreign Banks	1312	1569	1035	1368	1073	1240
c. Loans from Indian Banks	678	600				
<i>Loans repayable in 1 year,</i>	424	362	241	260	199	197
H. Total Loan Funds	2069	2269	1155	1508	1233	1420
I. Share Holders Funds (G-H)	5387	4366	3433	2870	2553	2222
Represented by						
a. Equity Share Capital	280	280	280	280	280	280
b. Reserves & Surplus	5107	4086	3153	2590	2273	1942
Less : Misc. Expenses						
J. Tangible Network	5387	4366	3433	2870	2553	2222

Source: CARE

Key indicators of working results and financial position are summarised below:

Table 7 - Financial Highlights

(Rs. mn)

Year Ended / As on	31/3/02*	31/3/01	31/3/00	31/3/99	31/3/98	31/3/97
Operating Performance						
Total Operating Income	4910	3864	2952	2248	2138	2053
PBILDT	1832	1469	1018	727	664	595
Interest	130	51	51	63	59	68
Profit from Operations	1275	1277	731	443	385	294
PAT	1121	956	608	341	358	270
Gross Cash Accruals	2252	1166	1007	780	728	589
Dividend (%)	75	50	50	33	33	25
Financial Position						
Gross Fixed Assets (exc.CWIP)	8057	6107	4383	3520	3419	3418
Equity Share Capital	280	280	280	280	280	280
Tangible Net Worth	5387	4366	3433	2870	2553	2222
Total Capital Employed	7456	6635	4588	4378	3786	3642
Key Ratios						
<i>Profitability Ratios</i>						
PBILDT margin (%)	37.3	38.0	34.5	32.3	31.1	29.0
PAT margin (%)	22.4	23.7	18.3	13.7	15.0	11.8
ROI (%) - Optg	22.3	29.7	21.7	14.3	12.3	9.9
RONW (%)	23.0	24.5	19.3	12.6	15.0	12.9
<i>Solvency Ratios</i>						
Longterm						
Debt Equity Ratio (times)	0.38	0.52	0.34	0.53	0.48	0.64
Overall Gearing ratio (times)	0.38	0.52	0.34	0.53	0.48	0.64
Interest Coverage (times)	10.79	25.86	15.41	8.08	7.56	5.31
Total Debt/Gross Cash Accruals (yrs)	1	2	1	2	2	2
Short Term						
Current Ratio	2.07	2.01	2.14	2.54	2.67	2.96
Quick Ratio	2.02	1.96	2.08	2.47	2.60	2.88
Avg. Coll. Period (days)	93	94	85	85	68	70

...contd.

Year Ended / As on	31/3/02*	31/3/01	31/3/00	31/3/99	31/3/98	31/3/97
Turnover Ratios						
Capital Turnover Ratios	0.78	0.86	0.82	0.63	0.59	0.56
Fixed Assets Turnover Ratios	1.24	1.62	2.31	2.19	1.82	1.41
Working Capital Turnover Ratios	2.09	1.85	1.27	0.89	0.88	0.93

* Accounts are subject to CAG audit

Source: CARE

Growth

DCI's total operating income grew at a CARG of 19% over the last six years, driven by growing demand for maintenance dredging in India. A major portion of the growth was witnessed only during the last three years.

The growth in total operating income has been due to addition in capacity coupled with increase in realisations per cubic metre dredged. DCI's dredging capacity increased from about 50 mcmpa in FY1999 to about 75 mcmpa in FY2002. The price realisations increased from about Rs.44 per cubic metre dredged to about Rs.61 per cubic metre dredged for the same period.

Profitability

DCI's PBILDT margin has been steadily increasing over the last six years. It increased from 29% in FY1997 to 37% in FY2002. Spares & Stores and Repairs & Maintenance as a percentage of total Operating Income have declined over the years. This has been offset by increase in cost of fuel and lubricants. Personnel cost as a percentage of total operating income gradually increased and peaked in FY1999, but has been declining thereafter due to higher operating income base.

PAT margins have also gradually increased from 12% in FY1997 to 22% in FY2002 due to higher PBILDT margins, and overall growth in income.

DCI's ROI has been on the rise, increasing from 9.9% in FY1997 to 29.7% in FY2001 largely due to improved profitability margins and growth in income. However, it declined to 22.3% in FY2002, due to capital expenditure for acquisition of new Dredgers and higher net working capital. Consequently, DCI's RONW also experienced a similar trend, increasing from 13% in FY1997, touching a high of 24.5% in FY2001 and declining to 23.0% in FY2002.

Cost of capital

DCI's cost of debt (pre-tax) ranged between 4 to 5% over the years. It was lower at 3.2% in FY2001 and increased to 6.3% in FY2002, due to loans taken for part financing the acquisition of Dredgers. Overall, the cost of debt has been low due to a large portion of the debt being low interest bearing foreign currency loans. As on March 31, 2002, out of total loan funds of Rs.2069 mm, Rs.1312 mm were foreign currency loans, carrying interest rates ranging from 2.5 to 3%.

Dividend payout ratios ranged between 15 and 25% during the last six years. Consequently DCI's cost of equity has been low at 4.3%. The overall weighted average cost of capital has also been in the range of 4 to 5% and was 4.9% in FY2002.

Capital Structure and Solvency

Build-up of Equity & Book-value

DCI's book value has been increasing gradually from around Rs.80 per share in FY1997 to Rs.192 in FY2002. High profitability coupled with low dividend payouts in the past has led to a significant increase in book value.

Liquidity

DCI's current ratio has been above 2 over the years indicating comfortable liquidity position. DCI's current ratio which was over 2.5 till FY1999 declined marginally during the last three years and was around 2.1. Though there has been considerable increase in receivables, DCI's overall liquidity position has been very comfortable with large amount of liquid funds in the form of cash and bank deposits.

Operational Efficiency

Fixed asset turnover ratio exhibited an increasing trend, from 1.4 for FY1997 to 2.3 for FY2000. However, it has been declining during the last two years and was 1.2 for FY2002 mainly due to acquisition of new Dredgers. Capital turnover ratio remained unchanged between FY1997 and FY1999 and has been increasing thereafter indicating higher efficiency of capital.

Contingent Liabilities

The company had contingent liabilities to the extent of Rs.259 mn. (5% of the tangible networth) as on March 31, 2002, mainly on account of claims made against the company not acknowledged as debts and IT claims.

Past Cash Flow statement

DCI's cash flow statements from FY97 to FY2002 are summarised in the Table below:

Table 8 - Past Cash flow statement

(Rs. mn)

Year to March 31		2002	2001	2000	1999	1998	1997
Cash from op. Activities (a)		1920	83	756	104	709	278
<i>Investing activities</i>							
Purchase of Fixed Assets	(-)	613	2255	959	701	215	9
Proceeds from Sale of Equipment	(+)	2	0	0	1	20	0
Sale of Investments	(+)	5	0	0	0	0	0
Interest Received	(+)	77	217	367	239	251	229
Net cash from Inv. Activities (b)		-529	-2038	-592	-461	56	220
<i>Financing activities</i>							
Fresh Borrowings	(+)	120	1352	0	404	0	0
Repayment of loans	(-)	375	244	245	224	196	201
Dividends paid	(-)	154	163	102	102	77	59
Net cash from fin. Activities (c)	(=)	-410	945	-347	78	-273	-260
Increase in cash surplus (a+b+c)		981	-1009	-183	-279	492	238

Source: CARE

While DCI's gross cash accruals per se have been increasing over the years, the net cash flow from operating activities fluctuated widely during the last six years, due to changes in working capital – mainly with regard to realisation of debtors and payables and fluctuations in other current assets.

Dredging is a highly capital intensive activity and the cost of a new Dredger is in the range of Rs.1500 mn to Rs.2000 mn. DCI acquired three new Dredgers during the last three years and the acquisition was funded partly by borrowings

and the balance through internal accruals. The above cash flow statement reveals that large amount of internal accruals were deployed by DCI for financing its capital expenditure programme.

SWOT ANALYSIS

The following table shows the strengths, weaknesses, opportunities and threats of/for the company:

Table 9 - Swot Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Almost fully owned by GoI and almost all clients are also controlled by GoI. • Only dredging company in India of its size, dominating maintenance dredging in India • Monopoly, enjoying profits • Sound Financial Position • Self-sustaining company • “Excellent” MOU rating • Mini-ratna status (subject to conditions) • Protection given to Indian flag vessels is likely to continue • Nomination facility and hence easily acceptable by ports • Well aware of conditions in Indian Ports • Vessels suited to Indian ports (e.g. Low draught vessels for Haldia) • Long standing relationship with customers gained by interaction with ports for last 25 years • Good quality of top management • Ports and DCIL under MoS and hence highly co-ordinated approach towards business 	<ul style="list-style-type: none"> • High manning levels • Low size of Dredgers, compared to those of foreign majors • Govt owned company, with limited delegation of powers with BOD for purchase of Dredgers, entailing elaborate process • PSU culture and slow response to market changes • Elaborate decision making process to withstand vigilance scrutiny • Lack of sufficient market orientation owing to assured market thus far • Lack of presence and experience in international market • Limited expertise in capital dredging, with few equipment suited for the same • Lack of sufficient focus on costing & pricing • Low penetration of IT. Reliance on manual methods for MIS • Operational inefficiencies due to high cost of repairs & maintenance • Lack of database on spares, leading to redundancy & high cost of spares

Opportunities	Threats
<ul style="list-style-type: none"> • 6000 km long Indian Coastline • Dredging is a continuous and unavoidable requirement for ports, hence assured business • Expected growth of capital dredging from new ports • Value added services for ports possible. This requires close interaction with ports • With current low levels of gearing, there is scope for borrowing, which would lead to enhanced shareholder value • Increasing dredging requirement in South-East Asia & Middle East. 	<ul style="list-style-type: none"> • Withdrawal of nomination facility in some ports • Advent of competition and drop in realisations • Low quotes by foreign companies with depreciated equipment to capture market • 'Cartel' of international dredging companies • Slow progress in establishment of new ports and hence of capital dredging requirements in India

Source: CARE

RECOMMENDATIONS

GoI owns 98.56% of the equity capital of DCI and controls its management. Government ownership has been an advantage to the company as almost all its customers, (Port Trusts, Indian Navy, Inland Waterways Authority of India etc.) are controlled by the Government. Further, DCI had the privilege of being the agency nominated by MoS to undertake dredging of some Indian Ports. The nomination facility ensured that the dredging capacity built up by DCI was fully used and tendering process was resorted to only in limited number of ports. Such a system, while ensuring that the dredging needs of Indian Ports were taken care of, failed to provide incentives to the nominated agency to improve its efficiency and develop new skills (say, in capital dredging). It is felt that the objective of the disinvestment exercise should be that timely and cost effective dredging services are provided to Indian ports and navy. At the same time, it may be borne in mind that dredging services like other services may come under the ambit of General Agreement on Trade in Services (GATS), negotiations for which are under progress.

A fresh round of comprehensive negotiations with the main aim of achieving greater degree of liberalization in all the service sectors, including maritime

transport, commenced in WTO from January 1, 2000 and they are expected to conclude by 2005. The sectors where market access for Indian professionals is specifically required include Construction and Engineering. Capital dredging which is normally a sub-activity in construction of new ports/berths will fall under the classification of Construction and Engineering. Maintenance dredging will come under support services for maritime transport. Developed countries extend assistance to their domestic dredging industry by way of subsidies, financial aid for R&D etc. The negotiations have not dealt with domestic coastal shipping known as cabotage (i.e. shipping between ports in the same country), a highly protected sector. Many countries reserve this kind of transportation for national-flag ships. From the above, it may be seen that protection given to the dredging industry by Governments will depend on the terms at which GATS is concluded, probably in 2005. At the same time, there is an urgent need to infuse foreign technology to build capital dredging skills. of DCI.

Issues in Privatisation

India has a long coastline of about 6000 km with 11 major and 20 minor ports. India's maritime trade is of the order of US\$85-100 bn. Continuity of this trade is critically dependent on regular maintenance of depth and width of the existing navigational channels in ports. Maintenance of such depth and width gains even more importance in certain ports like Haldia which experiences heavy siltation and requires continuous dredging. Further, timely dredging services are also essential for effective deployment of Indian naval vessels. Any uncertainty regarding timely availability of dredging services may encourage the port and naval authorities to develop their own dredging vessels. Such an action will lead to fragmented dredging capacities, a sub-optimal solution for the country.

While undertaking dredging work, the Dredgers are required to go very near many installations in the ports and also naval establishments. Some may view this as a security threat. However, it is felt that the security threat perception is exaggerated since satellite imaging etc. can provide the same information. Further, a pilot from the Port and an official of the Port Trust are kept on board while dredging work is undertaken.

There are no dredging companies of comparable size in the private sector in India. It may, therefore, be difficult to ensure competition in providing dredging services without involving foreign participants. Otherwise, it may lead to a private sector monopoly in an important "Service" sector, which may not be desirable.

There are only a few international dredging companies and most of them are based in Holland and Belgium. It is widely believed by the people in the industry that some of these companies sometime act in concert to prevent entry of competition and fall in dredging rates. Presence of an Indian company of DCI's size has, it is believed, acted as a counter to these foreign giants.

DCI has been functioning with the objective of meeting the dredging requirements of the country. Private management, it is feared in certain quarters, may prefer to deploy its dredging fleet on commercial consideration including its deployment on foreign assignments, which may adversely affect the smooth functioning of Indian ports with consequent impact on maritime trade. Indian Ports will then have to necessarily enter into long-term contracts for maintenance dredging to ensure timely availability of dredging services. At present, many of them have biennial contracts.

The manning levels on DCI's Dredgers are much higher than that of the foreign operators. Though exact numbers are not available in respect of the foreign operators, DCI has between 40 to 60 staff per Dredger, whereas Dredgers of foreign companies are believed to operate with as low as 10-16 staff members. Reasons for lower level of staffing include outsourcing of certain activities, willingness to perform multiple activities, use of modern Dredgers etc. DCI also has excess shore staff. Further, with old Dredgers leading to higher cost of operations including cost of fuel and repairs and maintenance, it may not be difficult to infer that the cost per cubic metre dredged is higher for DCI as compared to a foreign Dredger. Under the circumstances, privatisation should lead to improvement in efficiency and productivity.

The Government ownership at DCI has other disadvantages. Decision-making process, especially for capital expenditure, is elaborate to ensure that it withstands scrutiny by vigilance agencies. For almost ten years, DCI made no addition to or replacement of its fleet. Delay in enhancement of capacity and/or deployment of state-of-the-art technology leads to erosion of competitive advantage in the long run.

Each dredging assignment, especially capital dredging assignment, is like a green field project with its attendant risks. Organisations that are subject to various kinds of controls and restrictions are unlikely to have the necessary risk taking capacity for undertaking capital dredging contracts. As long as DCI remains a PSU, it may find it difficult for it to develop capital dredging skills.

Organisations controlled by Government are likely to have their limitations in developing commercial skills and responding to changes in a timely manner. These restrict the ability of the company to work effectively in a competitive environment.

Competition in the dredging sector is likely to intensify over the next few years due to withdrawal of nomination facility. Need of the hour is close interaction with the customers, understanding their needs and providing value-added services.

Maintaining status quo

If status quo is maintained, DCI may have difficulty in improving efficiency of its operations. As already mentioned, DCI has limited skills in undertaking capital dredging contracts. While it is true that efforts to set up new ports have only picked up recently in the country, it is equally true that whatever capital dredging works have been carried out in India, have been mostly done by foreign companies and DCI has not even bid in some tenders. It is, therefore, imperative that DCI acquires necessary skills to undertake capital dredging contracts, and compete in the international markets with the advantages that India has. For this, it requires collaboration with foreign companies with experience in executing capital dredging contracts.

Retention of present level of Government holding may deter foreign companies from entering into an alliance with DCI.

There is a great degree of comfort for both DCI and its clients in maintaining status quo. Since both DCI and Ports are under administrative control of MoS, dispute resolution is relatively easier. This relationship is unlikely to last long in view of the emphasis being laid on unbundling of port related activities and privatisation of the port sector. In the emerging scenario, focus would be on quality of work and cost competitiveness. Marketing skills of the dredging company would be critical in winning contracts. To survive in the emerging scenario, DCI needs to improve its efficiencies and develop marketing skills. Otherwise, it may even lose its existing clients leading to erosion in its value. Hence, maintaining status quo is not the optimal solution.

Disinvestment of majority shareholding and management control to a strategic investor

Here, the strategic investor may be either an Indian party; a consortium of Indian parties; a foreign party; or a consortium of Indian and foreign parties.

As the Indian private sector has limited presence in dredging business, it may be difficult to find a private sector participant (either singly or in consortium) with interest in DCI. At best, construction majors like Larsen & Toubro, Hindustan Construction Company etc. may evince some interest. However, there is expected to be good interest from the foreign dredging companies. A consortium consisting of Indian and foreign parties, preferably dredging companies, may perhaps be the best option.

Disinvestment of majority shareholding with transfer of management control is expected to lead to improved efficiencies in the system. New sophisticated Dredgers used internationally, if acquired and deployed, may lead to economies of scale and result in cost savings in dredging. Cost savings could be in the form of lower employee and administrative costs, reduction in energy cost, lower repairs and maintenance due to better upkeep and regular preventive maintenance, etc.

As already mentioned, Dredging is a critical function where time and cost are important. To ensure that timely availability of dredging services, Indian ports may consider entering into long term contracts with the Dredging companies.

Dredgers, like ships, are liquid assets and have a resale value. Trading in assets is an accepted business practice in shipping industry. While disinvesting its stake, GoI should ensure that the strategic partner taking over the company does not engage in 'asset stripping', which would adversely affect dredging services being rendered in the country.

While considering the identity of the strategic partner, the existing Foreign Direct Investment guidelines regarding investment in shipping sector need be considered. Automatic approval is available for foreign direct investment upto 74% in shipping. Further, 100 percent investment by NRIs in shipping with full repatriation benefits is also permitted.

To ensure that after privatisation DCI does not become a party to cartelisation, as feared in some quarters, Government should retain some share for a few years. Besides, adequate provisions are to be made in the transaction documents so that the interests of Indian ports are adequately protected.

DCI had estimated cash reserves of the order of Rs.1863 million as on March 31, 2002. It is estimated by CARE that after taking into account realisable value of current assets and current liabilities becoming due, it is possible for DCI to pay to its shareholders, a special dividend to the tune of Rs.2800 mn before disinvestment

In view of the above, the Commission recommends that GoI should disinvest at least 51% shareholding in DCI to a strategic partner after withdrawal of necessary cash surplus. GoI should hold at least 26% share for a minimum period of 5 years. While prequalifying the potential bidders, special care is to be taken to ensure that each of the potential bidders has the financial, technological and managerial capacity to add value to DCI to make DCI internationally competitive. Care has also to be taken to encourage Indian players in the process, to dispel any apprehension of cartelisation by foreign dredging companies.

*** * ***

2.2 NATIONAL PROJECTS CONSTRUCTION CORPORATION LTD. (NPCC)

INTRODUCTION

National Projects Construction Corporation Limited (NPCC) was established in 1957 as a construction company for the development of infrastructure in the core sectors of Irrigation and Water Resources, Power, Heavy Industry, etc. It is under the administrative control of the Ministry of Water Resources. The authorised capital of the corporation as on 31st of March 2001 is Rs. 30 crore and the paid-up capital is Rs. 29.84 crore. About 96.5% of NPCC's share capital is held by the Central Government and the balance by 14 State Governments. The company has its corporate office at Faridabad and four regional offices at Kolkata, Faridabad, Baroda and Vizag, seven zonal offices at Dehradun, Faridabad, Bilaspur, Chennai, Kolkata, Shillong and Agartala and three area offices at Patna, Baroda and Bhubaneswar. The company has 92 operating units as on 31st of January 2002 spread all over the country. The number of employees was 2975 as on March 31, 2002. NPCC has a large fleet of heavy earthmoving machinery, construction equipment and tunneling equipment. Most of the equipment, however, was procured more than decades ago.

NPCC is engaged in the execution of construction projects, mainly River Valley Projects (including Hydel Power), Thermal Power Stations, Transport Projects (for example, Bridges, Flyovers, Underground railways, Mass Rapid Transport System), Industrial and Residential Building Complex, etc. Some of the major projects (in value terms) executed by the organisation in the last five years in core sectors are given in the table below:

Table 1

Buildings and Townships	7%
River Valley Projects	39%
Heavy Industry	21%
Surface Transport, Bridges & flyovers	13%
Others	20%

Source: ICRA Advisory Services (ICRA)

INDUSTRY OVERVIEW

The construction sector is one of the most important engines of economic growth in any country. In India, construction is the second largest economic activity after agriculture, accounting for a gross annual business volume of about Rs 2,300 billion.

The segmentation of the construction industry as a percentage of the total business volume has been depicted below:

Table 2 – Segmentation of Indian Construction Industry

Commercial	6%
Residential	6%
Industry	33%
Infrastructure	55%

Source: ICRA

Critical Success Factors of the Industry

Speed driven by technology

Technology affecting speed and efficiency of construction is a critical success factor in today's construction industry. Construction industry in India has traditionally been labour intensive. This was facilitated by the relatively low skill requirements for civil/structural jobs. With increasing private sector participation, technology up-gradation has been in line with global trends, and capital intensity levels in project execution have increased. With institutional funding now available for construction projects, focus is on minimising project risks. Usage of certain types of equipment is now imperative for construction companies in order to ensure timely completion of projects and reduce quality related complaints.

NPCC has hardly any state of art construction equipment, and is also not in a position to use leased services either because of its already low contribution margins on projects.

Technical Collaborations and Training

Project contracts are now increasingly being awarded on Engineering, Procurement and Construction (EPC) basis. To qualify as an EPC contractor, a construction

company requires a broad range of complementary expertise that has to be acquired either by regular training programs for the employees and technical tie-ups.

NPCC has been losing engineering manpower over the years and does not have any international technical collaborations which could provide brand equity and impart technical training to its manpower.

Financial Strength

The declining trend in non-interest bearing customer advances and delays in payments from customers have affected the ability of the contractor to raise working capital. Lack of availability of institutional sources of finance for construction industry till recently also added to the cost of funds.

NPCC does not have either reserves or access to commercial finance except for GOI loans. Sustained losses have led to the complete erosion in the net worth of the company. As on March 31, 2001, the accumulated losses stood at Rs.421.5 crore, the losses being largely financed by loans from GoI.

Contract Labour

On account of variability in project earnings, construction companies tend to minimise fixed overheads by keeping the number of permanent employees low. As an industry wide practice, unskilled construction workers are seldom taken on the permanent rolls. This is more so in India on account of the inflexibility of the labour force in terms of mobility and functional ability.

NPCC does not have much flexibility on this account as it is already saddled with substantial unproductive workforce.

Prevailing Policy/Regulation

Government has taken some initiatives to boost up the construction sector:

- Institutional finance is now available to this industry since Government has granted industry status to construction activity;
- Contract documents for construction have been standardised while several insurance products have been developed to mitigate the risks inherent in construction projects;
- Urban Land Ceiling Act has been repealed;

- Tax incentives are encouraging ownership of housing and the recent drop in real estate prices has boosted the housing segment of the construction industry;
- In the recent budget, the basic duty on certain equipment has been reduced. Customs duty on cement and clinker has also been reduced. Interest Rates on housing loans have been further slashed down;
- The budgetary outlays to sectors like Power, Roads and other infrastructure sectors have been increased.

All these measures are conducive to opening up more business opportunities for the construction sectors in India.

Position of NPCC in the Construction Industry

Some of the major players in the construction business in India are Larsen & Toubro, Hindustan Construction Company, Bridge & Roof, Gammon India, Kvaerner India and National Buildings Construction Corporation (NBCC). However, NPCC's major competitors in the kind of work it executes are: Engineering Projects India Limited, Bridge & Roof, NBCC, Jog Engineering Limited, Gammon India and Hindustan Construction Company.

Comparative financials of the key players of the industry and of NPCC with respect to key financial indicators like Operating Income, Gross Profit, Gross Profit Margin, Employee cost to Operating Income are depicted in the Table below. It can be observed that NPCC has lowest gross profit margin and highest employee costs among its peers which clearly make it uncompetitive at operating level.

**Table 3: Inter firm comparison of comparative players in construction ind
(as on 31.3.2001) Amount in Rs. Crore**

Company	→	Bridge & Roof	EPIL	Gammon India	HCC	Jog Engg.	NBCC	NPCC
Financial Indicators	↓							
		Private	Public	Private	Private	Private	Public	Public
Operating Income (OI)		317.45	139.38	452.65	599.26	100.72	284.74	156.89
Gross profit/Loss (OPBDIT)		-0.3	-13.96	47.14	154.27	-9.57	-11.59	-33.59
Gross Profit Margin (OPBDIT/ OI)-%		-0.09	-10.02	10.41	25.74	-9.50	-4.07	-21.41
Employee cost/OI %		13.31	12.09	7.94	7.38	1.90	15.79	22.96

Source: ICRA

Employee Profile and Strength

NPCC has 2975 employees in its rolls, as on 31.3.2002. However, on account of the VRS scheme being offered to the employees, there has been serious depletion of qualified officers, especially in the functional areas of Mechanical engineering, Civil engineering and Finance, both at the senior and junior management levels during the last two years. In addition, there has been no recruitment of officers in the last 15 years.

Distribution of non-executive employees shows that the number of employees in the support categories of Accounts, Assistants, Clerk Typists, Drivers, Messengers, Stores and Security is very high. It is estimated that about 90% of such employees are outside operational functions and this is in contrast with standard industry practice of outsourcing most of such activities.

OPERATING PERFORMANCE

Inadequate order book position

NPCC had orders aggregating to over Rs.300 crore as on March 31,2001. While this will take upto two years to execute, the magnitude appears inadequate to support the existing manpower. The trend in order book position is illustrated below:

Table 4 : Trend in order book position

(Rs. Crore)

	FY97	FY98	FY99	FY00	FY01
Opening order book	252.53	273.88	269.05	250.74	320.27
Additions during year	133.52	105.17	100.06	200.79	151.56
Turnover	112.17	120.00	118.38	131.25	144.67
Closing order book	273.88	259.05	250.74	320.27	327.16

Source: ICRA

Weakening Market Position

NPCC's success rate in terms of works secured vis-à-vis works tendered dropped from 54% in FY97 to 38% in FY01 indicating weakening of its market position. Moreover, many of these orders have been secured below total cost levels. The weak financial position of the company, poor track record in project execution and increased competition have adversely affected NPCC's market position.

Unsustainable Cost Structure

High fixed cost and low contribution margins

The payment to subcontractors and employee costs (excluding VRS) together accounted for over 88% of the total cost of NPCC in FY01. NPCC's contribution margin has declined over last five years as shown in the table below:

Table 5 : Trend in contribution, operating income and employee costs of NPCC

(Rs. Crore)

	FY97	FY98	FY99	FY00	FY01
Value of Work Done	120.66	115.21	119.07	142.37	155.81
Operating Income	122.10	116.89	121.30	142.42	156.89
Less: Variable Cost					
Payment to subcontractors	73.09	79.04	85.63	110.06	137.29
Power and Fuel	0.47	0.34	0.36	0.37	0.14
Construction expenses (other)	26.83	19.91	17.05	13.28	8.92
Contribution	21.71	17.60	18.26	18.71	10.54
Contribution/Operating Income	17.8%	15.1%	15.1%	13.1%	6.7%
Payment to subcontractors /Value of Work Done	60.6%	68.6%	71.9%	77.3%	88.1%
Less: Fixed Costs					
Employee Costs	32.42	38.05	36.97	37.85	36.02
% of Operating Income	26.6%	32.6%	30.5%	26.6%	23.0%
Administrative and Other Exp.	5.95	5.86	6.13	7.71	7.68
Selling & Business Promotion Expenses	0.60	0.14	0.35	0.57	0.43
Total	38.97	44.05	43.45	46.13	44.13

Source: ICRA

The main reason for the decline in the same can be attributed to the rise in subcontracting of the work over this period. The payment to sub contractors as a percentage of value of work done rose from 60.6% in FY97 to a high of 88.1% in FY01. The contribution was not enough to pay the employee costs. The key to sustainable operations is to keep the sub-contracting and employee costs below a fixed percentage. However, a construction company may choose to sub-contract

almost everything and run a skeletal organisation in which case the sub-contracting costs will be very high and employee costs low. The important issue here is that while employee costs have not reduced, sub-contracting costs have doubled. This suggests that the employees are not being gainfully employed.

The decline in contribution margins coupled with the rise in fixed costs contributed to company incurring loss at the operational level (OPBDIT) in last five years. The operating profit margins of the company have been negative for the last few years, as shown in the table below:

Table 6: Trend in operating margins of NPCC

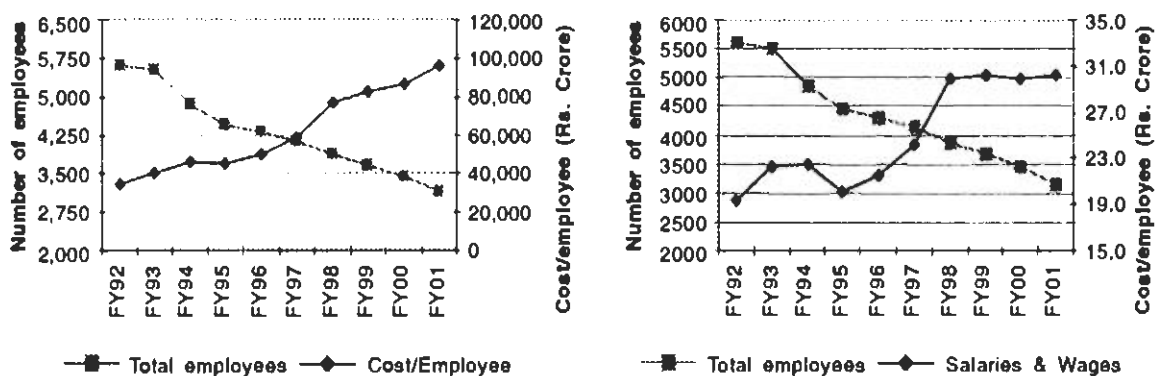
	FY97	FY98	FY99	FY00	FY01
OPBDIT/Operating Income (OPM)	-14.1%	-22.6%	-20.8%	-19.3%	-21.4%
OPBDT/Operating Income	-34.3%	-43.3%	-40.3%	-36.0%	-39.3%

Source: ICRA

It may be noted that there is hardly any improvement in operational efficiency in the last five years, whereas increased outsourcing of core activity seems to have rendered manpower idle and ineffective.

NPCC's employee cost constituted 23% of its turnover in FY01. This compares unfavourably with its competitors as is evident from table-3 earlier. Despite a decline in number of employees (from 5586 in FY92 to 2975 in FY02), the employee costs of the company have risen till FY98. It is evident from the Exhibits below that cost per employee has risen continuously.

Exhibit :: Trends in employee cost & cost per employee



The above trends clearly indicate that even with reduced number of employees the total employee costs could not be brought down, which, along with increasing subcontracting costs, led to further decline in operating margins.

Financial Performance

The Balance Sheet and Profit & Loss Account of NPCC, given below, illustrate its weak financial position:

Table 7 : Balance Sheet

(Rs. Crore)	31.03.97	31.03.98	31.03.99	31.03.2000	31.03.2001
ASSETS					
Gross Block	85.01	86.20	84.89	83.47	79.69
Gross Block	85.01	86.20	84.89	83.47	79.69
Less : Accumulated Depreciation	(69.88)	(71.74)	(72.10)	(71.96)	(69.39)
Net Block	15.14	14.46	12.79	11.51	10.31
NET FIXED ASSETS	15.14	14.46	12.79	11.51	10.31
Investments (NSC/GOI)	16.01	0.01	0.21	0.20	0.20
TOTAL INVESTMENTS	16.01	0.01	0.21	0.20	0.20
Spares	0.04	0.04	0.04	0.04	0.03
Stores and components	13.32	11.56	11.07	9.47	8.70
TOTAL INVENTORIES	13.36	11.60	11.11	9.51	8.73
Receivables (More than 6 months)	80.63	70.98	78.00	81.03	82.77
Receivables (Less than 6 months)	27.62	40.18	21.10	23.18	22.45
TOTAL RECEIVABLES	108.26	111.16	99.10	104.21	105.22
Cash and Bank Balances	26.40	15.09	27.21	29.38	21.08
Security Deposit with project authorities	14.90	16.28	19.75	20.49	22.73
Advances recoverable in cash/kind/ value to be received	37.18	43.83	45.88	52.34	46.42
Advances to directors	0.00	0.00	0.00	0.00	0.01
Interest receivable/accrued	3.69	1.33	1.44	1.38	1.46
Receivables from project authorities	28.73	29.81	34.78	33.73	37.28
Other current assets including prepaid expenses	0.86	1.06	0.81	0.78	0.76
Advance IT/TDS	0.44	0.69	0.98	1.16	1.38
TOTAL OTHER ASSETS	112.20	108.09	130.85	139.24	131.11
TOTAL CURRENT ASSETS	233.81	230.84	241.06	252.96	245.07
TOTAL ASSETS	264.95	245.31	254.06	264.68	255.57

Source: ICRA

Table 8: Profit & Loss Account

(Rs. Crore)	Actuals									
	31.03.97	% of OI	31.03.98	% of OI	31.03.99	% of OI	31.03.2000	% of OI	31.03.2001	% of OI
Work done for year	120.66	98.8%	115.21	98.6%	119.07	98.2%	142.37	100.0%	155.81	99.3%
Net Sales	120.66	98.8%	115.21	98.6%	119.07	98.2%	142.37	100.0%	155.81	99.3%
Other Related Income	1.44	1.2%	1.68	1.4%	2.24	1.8%	0.04	0.0%	1.09	0.7%
OPERATING INCOME	122.10	100.0%	116.89	100.0%	121.30	100.0%	142.42	100.0%	156.89	100.0%
Payment to subcontractors	73.09	59.9%	79.04	67.6%	85.63	70.6%	110.06	77.3%	137.29	87.5%
Power and Fuel	0.47	0.4%	0.34	0.3%	0.36	0.3%	0.37	0.3%	0.14	0.1%
Employee Costs	32.42	26.6%	38.05	32.6%	36.97	30.5%	37.85	26.6%	36.02	23.0%
Construction expenses (other)	26.83	22.0%	19.91	17.0%	17.05	14.1%	13.28	9.3%	8.92	5.7%
Administrative and Other Exp.	5.95	4.9%	5.86	5.0%	6.13	5.1%	7.71	5.4%	7.68	4.9%
Selling & Business Promotion Expenses	0.60	0.5%	0.14	0.1%	0.35	0.3%	0.57	0.4%	0.43	0.3%
Misc. exp. W/o		0.0%		0.0%		0.0%		0.0%		0.0%
Less : Expend. Capit.	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
COST OF SALES	139.37	114.1%	143.34	122.6%	146.50	120.8%	169.83	119.3%	190.49	121.4%
OPBDIT	-17.27	-14.1%	-26.45	-22.6%	-25.19	-20.8%	-27.42	-19.3%	-33.59	-21.4%
Interest and Finance Charges	24.56	20.1%	24.20	20.7%	23.64	19.5%	23.85	16.7%	28.12	17.9%
OPBDT	-41.82	-34.3%	-50.66	-43.3%	-48.83	-40.3%	-51.26	-36.0%	-61.72	-39.3%
Depreciation	3.09	2.5%	2.56	2.2%	1.85	1.5%	1.43	1.0%	1.14	0.7%
OPBT	-44.91	-36.8%	-53.21	-45.5%	-50.68	-41.8%	-52.70	-37.0%	-62.86	-40.1%
Non - operating Income	3.56	2.9%	2.45	2.1%	1.94	1.6%	3.77	2.6%	4.80	3.1%
Cash Adjustments	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Extraordinary Income	2.19	1.8%	3.69	3.2%	2.75	2.3%	8.41	5.9%	7.55	4.8%
Extraordinary Income / (Expense)	-2.19	-1.8%	-3.69	-3.2%	-2.75	-2.3%	-8.41	-5.9%	-7.55	-4.8%
APBT	-41.35	-33.9%	-50.76	-43.4%	-48.74	-40.2%	-48.93	-34.4%	-58.05	-37.0%
Tax	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
APAT	-41.35	-33.9%	-50.76	-43.4%	-48.74	-40.2%	-48.93	-34.4%	-58.05	-37.0%

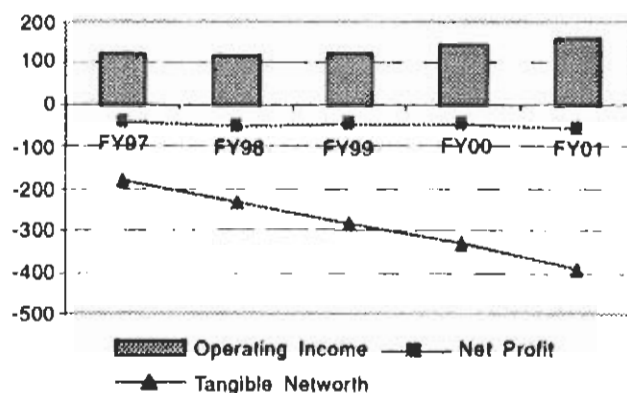
Source: ICRA

Continuous Erosion in Net Worth

The company has extremely weak financial position given the sustained losses suffered during last five years. The sustained losses have led to erosion in the

net worth of the company. NPCC had accumulated losses of Rs.422 crore as on March 31,2001. Given the negative net worth and operating loss, the other profitability indicators (ROCE, RONW) are not meaningful for the company.

Trend in operating income, net profit and tangible net worth



Source: ICRA

Increasing debt and no equity infusion led to unserviceable finance charges

The interest and finance charges accounted for 18% of operating income in FY01 and contributed significantly to the net losses of the company. The company has taken loans from GOI to finance its operating losses. The interest dues to government are also pending as indicated by the rise in interest accrued and due on loans. The following table shows the trend:

Table 9: Trend in NPCC's total debt and interest & finance charges

(Rs crore)	FY97	FY98	FY99	FY00	FY01
Interest and Finance Charges	28.12	23.85	23.64	24.20	24.56
% of Operating Income	17.9%	16.7%	19.5%	20.7%	20.1%
Project Authorities	6.52	7.15	7.28	6.87	7.48
Working Capital Demand Loan	15.15	16.70	16.13	16.60	16.60
Term Loans (GOI/ONGC/ NMDC)	81.29	86.29	95.79	107.79	127.79
Total Long Term Debt	102.96	110.14	119.20	131.26	151.87
Cash Credit	24.04	3.68	9.96	11.84	11.85

...contd.

(Rs crore)	FY97	FY98	FY99	FY00	FY01
Loans from Project Authorities for works	35.51	37.93	36.28	37.42	33.82
Total Short term debt	59.55	41.61	46.24	49.26	45.67
TOTAL DEBT	162.51	151.75	165.44	180.52	197.54
Interest accrued and due on loans	76.27	91.72	107.45	125.59	145.81
Interest accrued but not due on loans	14.68	16.05	18.61	20.62	29.48

Source: ICRA

Lack of working capital further erodes competitiveness

The company has tight liquidity position and low financial flexibility to meet its short-term liquidity requirements. The company has inadequate working capital and bank guarantee limits, and a weak balance sheet to approach banks on its own for working capital limits and is, therefore, not always in a position to provide EMDs/Performance guarantees as required in this business.

Table 10: Trend in NPCC's key liquidity indicators

	FY97	FY98	FY99	FY00	FY01
Current Ratio	0.68	0.62	0.58	0.54	0.49
Debtors (days)	327	352	304	267	246
Cash/Current Assets	11%	7%	11%	12%	9%
Debtors/Current Assets	46%	48%	41%	41%	43%
Inventories/Current Assets	6%	5%	5%	4%	4%
Advances/Current Assets	28%	32%	33%	34%	34%
NWC/OI	-64%	-96%	-130%	-135%	-144%

Source: ICRA

Liquidity problems arising from poor management of receivables with large proportion of receivables over 3 years

NPCC's receivables period has declined over last five years but it is high at 246 days in FY01 and constitutes 43% of its total current assets. Out of the total receivables nearly one third are outstanding for over three years. The following table shows the trend:

Table 11: Trend in age wise profile of debtors

	FY00	FY99	FY98	FY97	FY96
<1 Year	52%	54%	53%	39%	37%
1-2 Year	9%	8%	9%	12%	7%
2-3 Year	5%	4%	3%	2%	2%
>3 Year	34%	34%	35%	47%	53%
Total	100%	100%	100%	100%	100%

Source: ICRA

Contingent Liabilities

As on March 31,2001 there were 40 court cases pending at various stages and nearly 65 arbitration cases pending and the total liability could be about Rs.93 crore. Other contingent liabilities can be on account of performance bank guarantees given on contracts under execution.

SWOT ANALYSIS

Strengths

- Established expertise in execution of a large variety of projects in difficult and remote terrain like North Eastern Region and Northern zones;
- Experience in execution of long tunnelling work. The organisation completed execution of long tunnelling works in India and abroad.

Weaknesses

- Dwindling order book position due to non-availability of Bank Guarantee and liquidity problems gives a strong evidence of precarious financial/balance sheet position;
- Inability to meet huge interest burden to the tune of Rs. 30-35 crore;
- Surplus manpower with distorted distribution of its employee skill;
- Low penetration in Southern and Western regions;
- Lack of experience in areas like ports, airports, mass-transport and roads in which large public investment is likely in the future;

- Erosion of market credibility and inability to meet pre-qualification requirements on account of not having executed requisite works in the recent past.

Opportunity

- With increasing investments taking place in infrastructure sectors, there is a clear growth potential for this industry.

Threats

- NPCC's main area of operations being Eastern and North Eastern zones of the country, its future business is exposed to risk because of disturbances in certain pockets which could have adverse impact on both future business and recovery.
- NPCC has been defaulting in payments to its creditors; some of them might initiate legal proceedings against the company.
- With the increasing trends of and incentives for private sector participation in the infrastructure project sponsorship, NPCC may find itself out of place in the near future.

RECOMMENDATIONS

NPCC operates in a highly competitive market and under present economic circumstances there is hardly any economic rationale for a government unit in the construction sector, which is a non-strategic sector from the point of view of disinvestment.

With completely eroded net worth and accumulated losses of Rs. 422 crore as on March, 31, 2001 and a continually weakening operational and financial position, disinvestment of NPCC in its current state is unlikely to attract any strategic partner or investor. In addition, GOI has been funding NPCC's losses through plan and non-plan assistance. Dues owed to GOI in form of term loans and interest thereon stood at Rs.240 crore (as on March 31,2001).

Maintaining status quo would, therefore, require continued funding of increasing losses by GOI. As the following Table would show, the present value of estimated losses works out to about Rs 694 crore based on projected performance without any restructuring.

Table 12: Projected Profit and Loss Account (Status Quo)

(Rs. crore)	Actuals				Projections				
	31.03.2000	% of OI	31.03.2001	% of OI	31.03.2002	31.03.2003	31.03.2004	31.03.2005	31.03.2006
Profit & Loss Account									
Work done for year	142.37	100.0%	155.81	99.3%	163.60	171.78	180.37	189.39	198.86
Net Sales	142.37	100.0%	155.81	99.3%	163.60	171.78	180.37	189.39	198.86
Other Related Income	0.04	0.0%	1.09	0.7%	1.64	1.72	1.80	1.89	1.99
OPERATING INCOME	142.42	100.0%	156.89	100.0%	165.24	173.50	182.17	191.28	200.84
Payment to subcontractors	110.06	77.3%	137.29	87.5%	139.06	146.01	153.31	160.98	169.03
Power and Fuel	0.37	0.3%	0.14	0.1%	0.49	0.52	0.54	0.57	0.60
Employee Costs	37.85	26.6%	36.02	23.0%	37.61	39.28	41.04	42.88	44.82
Construction expenses (other)	13.28	9.3%	8.92	5.7%	13.09	13.74	14.43	15.15	15.91
Administrative and Other Exp.	7.71	5.4%	7.68	4.9%	8.06	8.47	8.89	9.34	9.80
Selling & Business									
Promotion Expenses	0.57	0.4%	0.43	0.3%	0.45	0.47	0.49	0.52	0.55
Misc. exp. w/o		0.0%		0.0%					
COST OF SALES	169.83	119.3%	190.49	121.4%	198.77	208.49	218.71	229.43	240.70
OPBDIT	-27.42	-19.3%	-33.59	-21.4%	-33.53	-35.00	-36.54	-38.15	-39.85

(Rs. crore)		31.03.2002	31.03.2003	31.03.2004	31.03.2005	31.03.2006	Continuity value
OPBDIT		-33.53	-35.00	-36.54	-38.15	-39.85	-746.29
NPV to Government	-693.95						

Source: ICRA

In addition, GOI would need to provide and /or facilitate additional loans for working capital and normal capital expenditure in order to sustain the operations. Given the fiscal position of GOI, and the nature of this business, a subsidy of this magnitude may neither be sustainable, nor justifiable.

Under the circumstances explained, the following options are available:

1. Closure
2. Revival through a combination of business and financial restructuring.

Closure

This option involves initiating steps to wind up the company. It will entail settling statutory dues, paying closure compensation to the employees, selling assets of the corporation and completing some existing projects on hand. If the

closure proceedings are initiated the financial implications (estimated) and other issues are listed below:

Table 13: Evaluation of Closure Option (estimated)

	Amount (Rs. Crore.)
Estimated realisable value of assets	217
Estimated liabilities (excl. contingent liabilities)	516
Estimated liabilities (incl. Contingent liabilities)	610
<i>Estimated shortfall</i>	299
<i>Estimated shortfall (incl. Contingent liabilities)</i>	392

Source: ICRA

However, going by the statutory norms on winding up of companies, GOI would have to have to make payments for VSS (all employees) and PF dues amounting to Rs 110 crore. In addition, it would have to absorb the liability arising out of government guaranteed debts and contingent liabilities like performance guarantees extended on projects under execution, if any. However, the closure process can be phased over a period of time to ensure that the existing projects on hand are completed. The remaining shortfall in meeting liabilities will have to be settled to the extent of realisation of assets and in certain order as per the winding up procedures.

Given the shortfall of assets, the GOI will then have to additionally write off Rs.294.89 crore as they are sunk costs, as detailed below:

Paid up share capital (Rs.28.79 crore held by GOI)

Long term loans from GOI (Rs. 114.8 crore)

Accumulated interest due on loans from GOI (Rs. 124.78 crore)

Interest accrued but not due on loans from GOI (Rs.26.53 crore)

Revival through Business, Operational and Financial Restructuring

Given NPCC's current operating position and trends in the last five years, any attempt by GOI to financially rehabilitate NPCC does not appear to be of much use unless radical improvements in operational efficiency and drastic reduction in fixed costs are effected.

IDBI, based on a study conducted by S.R.Batliboi & Company a few years ago, recommended a restructuring/review plan, the major features of which are detailed below:

- One-time infusion of funds to the extent of Rs 125 crore by Government of India (GOI) in the form of 5% Redeemable Preference Shares, which would be redeemed in five annual installments commencing from the year 2007,
- All outstanding loans from GOI and the entire interest and other charges thereon to be waived,
- GOI to provide counter guarantee to an extent of Rs 125 crore to cover existing working capital limits of Banks and EMD requirement,
- Banks to grant relief as per the RBI guidelines for sick units and also sanction additional working capital limits to the extent of Rs 75 crore,
- ONGC/NMDC to waive entire interest and other charges due on the unsecured loans and agree to receive repayment of principal in five annual installments commencing from 2001-02, without carrying interest and
- Approximately, 1400 employees are expected to avail VRS in the first two years. Cost of the VRS estimated at Rs 60 crore will be financed by GOI, which is expected to bring down the employment cost to a level of Rs 18 crore from the existing level of around Rs 33 crore.

IDBI has indicated the cost (other than writing off all loans, interest due accrued and contingent liabilities on account of guarantees given, etc.) of revival plan and proposed means of finance as follows:

<i>Cost of Revival</i>		<i>Means of Finance</i>	
Capital Expenditure	: 27.0 crore	Pref. Shares of GOI	125 crore
VRS Payment	: 59.5 crore	Assistance from NRF	59.5 crore
Arrears of Salary/PF etc.	: 54.0 crore	Recovery of old Debts	5 crore
Cash losses (2 yrs)	: 14.2 crore	Sale of Fixed assets	3.3 crore
Repayment of Advances	: 18.5 crore		
Margin Money for WC	: 9.7 croré		
Creditors	: 10.0 crore		
Total	: 193 crore	Total	193 crore

Source : ICRA

However, no revival plan has been implemented.

According to a broad estimate done by ICRA, the cost of desired package is estimated at over Rs.200 crore (other than writing off all loans, interest due, accrued and contingent liabilities on account of guarantees given, etc.). But revival of NPCC is an extremely difficult goal to attain because of, inter alia, the following reasons

- NPCC does not have any technical, business or client based strengths to be able to get contracts. It is evident that GOI has to award them some construction contracts on a preferential basis and even if the same is done, NPCC would have to sub-contract further.
- It might be very difficult to implement VRS as many of NPCC employees are unlikely to opt for the same .
- Construction EPC business requires the contractor to carry huge outstanding over a considerable period of time which NPCC may not be able to do.

NPCC does not have the requisite manpower skills and the organisational competence to execute projects efficiently, in a highly competitive sector. NPCC scores rather poorly on each of the critical success factors required in this business, as discussed earlier. The restructuring option would also require concurrence of various stakeholders, particularly lenders like ONGC/NMDC for writing off all existing loans, advances and interest accrued and due. Besides, financial restructuring will also have to be supplemented with radical improvement in operational efficiencies if NPCC were to be become viable over a period of time.

NPCC believes that it has been acting as a deterrant to private construction companies forming a cartel and that with some assistance from GOI, it can be turned around. The Commission feels that the fear of cartelisation in a competitive industry like construction is without basis and that there is no rationale for Government to pump in huge amount of fund for NPCC to remain a Government company.

It is evident that chances of NPCC being turned around are low. However, there may be some private companies which may be interested to buy the

stake in NPCC, owing to synergy or other reasons. Besides, NPCC has been working in difficult and sensitive areas. Keeping these factors in view, the Commission recommends that a restructuring package, in consultation with prospective buyers, be formulated and the entire GoI stake disinvested in favour of a strategic buyer. The restructuring of NPCC and its total disinvestment should be concurrent. In case no strategic buyer shows interest, or in the event the cost of closure turns out to be much cheaper compared to the cost of revival and disinvestment, the option of closure has to be pursued.

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2.3 SEMICONDUCTOR COMPLEX LIMITED (SCL)

INTRODUCTION

Semiconductor Complex Ltd. (SCL) was set up in 1983 to design, develop and manufacture Large Scale Integrated Circuits (LSI)/Very Large Scale Integrated Circuits (VLSI) devices and to manufacture VLSI based systems and subsystems; to fulfil strategic needs of the country in the area of micro-electronics; and to create a strong Research and Development base in the VLSI field. The company commenced commercial production in 1984 and has been marketing VLSI devices/system and products for telecommunication, consumer, industrial and strategic market segments in the country.

The complete fabrication facility at SCL got burnt in a fire accident in 1989. As a result of this setback, the company could resume full-scale fabrication operations only in April 1998 from the rebuilt fabrication facility. At the time of granting approval for rebuilding of the VLSI fabrication facility at an outlay of Rs. 332.56 crore, it was stated that such a facility at SCL was essential towards developing and sustaining indigenous capability in the area of micro-electronics (ME), keeping in mind the broader national self-reliance consideration for ME. Commercial considerations, which called for establishing a plant of significantly larger scale, were again subordinated.

SCL possesses the country's only integrated wafer fabrication facility comprising design, fabrication, testing, packaging, quality assurance and system/board-level assembly. However, the scale of the wafer fabrication is only 1/12th of a global scale fabrication facility.

In keeping with its basic objective, SCL has been meeting the specific requirements of the strategic sector, having developed and supplied several products/ASICs to the strategic sector including those that called for development of special process technologies. Recent examples of these are development of visible spectrum CCD liner imager for ISRO and Multiplexed Analog Signal Processor (MANAS) chip for DAE.

In the non-strategic sector, SCL has identified telecom as its focus area, keeping in view its technological capability and the expertise developed over the years. The major telecom products during the past few years have been CODEC and Signal Processing (SP) card for CDOT exchanges. Currently, telephone ICs, viz.,

the Tone Pulse Switchable IC and Single Chip IC are under commercial production. In addition to these ICs, the company has also been supplying telecom transmission equipment, such as Digital Pair Gain System (DPGS), the Optimux range of products with plans to supply newer telecom equipment such as Synchronous Transport Module (STM-16) and Digital Loop Carrier (DLC) in the near future under tie up with reputed overseas telecom companies.

Smart Cards is another application identified by the company with potential for growth in the future. SCL is making efforts to become a major player in the country for applications such as Driving Licence, Voters' ID, Pay Phones, etc. SCL would like to utilise its experience and expertise in the manufacture of chips/micromodules and infrastructure particularly chip fabrication.

Among the newer thrust areas identified by the company are the Electronic Energy Meters (EEMs), Smart Cards and Micro Electro Mechanical Systems (MEMS). The company has already supplied EEMs to various State Electricity Boards (SEB) and has the potential to become a comprehensive indigenous manufacturer of EEMs in the country by way of manufacture of the chips, which is at the core of these meters.

In the area of MEMS, which is widely acknowledged as the next logical step in silicon revolution, SCL has recently been selected as the foundry for MEMS services under the National Programme on Smart Materials (NPSM).

The authorised share capital of the company is Rs.220 crore and paid-up capital as on 31.3.2001 was Rs.188.41 crore. There were 747 employees, as on 31.3.2001.

INDUSTRY OVERVIEW

Microelectronics (ME) is at the heart of IT revolution that has embraced the globe since the past decade, and has been recognized as a core strategic technology the world over. It constitutes a vital ingredient of any modern electronic equipment and is widely perceived to be a key driver of the economy of a nation in the years to come. Accelerated development in the ME arena is imperative for any nation and this fact has been realised by most countries. Therefore, many nations have constituted institutions/mechanisms to develop, and sustain indigenous competence in this field.

Semiconductor industry is a sub-sector within the ME industry and is the most competitive and technology intensive. The whole revolution in electronic processing

power and proliferation of low-cost computing devices has been a function of technological advances made in the semiconductor field.

Semiconductor Technology Trends

- The technology trends are dominated by efforts to reduce the minimum feature size on the silicon wafer. The cutting edge production technology at present is 0.18 micron. The technology roadmap prepared by the semiconductor industry association (SIA) of the US suggests that the line width is projected to shrink to 0.13 micron in 2002, 0.1 micron in 2005, 0.07 micron in 2008 and finally to 0.035 micron in the year 2014.
- In another direction, essentially dictated by the economies of scale, the diameter of the wafer is steadily increasing from the initial 2 inch to the current level of 8"/12". This would further increase to 18" by 2008.
- The number of bits per chip is also projected to increase from the present 1 gigabit to 64 gigabit by 2008 and finally to one terabit by 2014.
- There has also been effort to reduce power consumption of the circuit leading to the environment friendly products. The voltages are likely to decrease from the current level of 1.8 volts to 1.2 volts by the year 2005 and to 0.9 volts by the year 2008.
- Highly sophisticated and complex CAD tools for VLSI design has increased the need to put several million transistors on a single chip of silicon. Currently, a state-of-the-art fabrication facility that is capable of manufacturing 300 mm wafer diameter is being built by semiconductor majors such as Intel, TSMC, Infineon, with an estimated cost of such facilities approaching US\$2 billion.

During the past decade, the price/performance ratio of semiconductor devices has been improving by 18% per year and the miniaturisation of chips is doubling every 2.5 years. Though there are material and process limitations to miniaturisation, it appears that the process would continue over the next 10-12 years.

Global Market

The semiconductor (SC) industry is one of the very few industries globally which has crossed the US\$200 billion mark. The worldwide SC production of microelectronics during 1999 was around US\$200 billion. Due to recession in

the global economy, the SC production during 2001 fell to around US\$138 billion. Leading international analysts project recovery for the global semiconductor market, with sales reaching US\$213 billion by 2004. The regional distribution of world semiconductor production is shown in the Table below:

Table 1 : Regional Distribution of Global Semiconductor Production

Region	Share
<i>North America</i>	30%
<i>Europe</i>	20%
<i>Japan</i>	25%
<i>Asia Pacific</i>	25%

Source: Semiconductor Industry Association (SIA), the US / ICRA Advisory Services (ICRA)

The following Table ranks the top 10 SC companies worldwide, revenue-wise, during 2001:

Table 2 : The Top 10 SC Companies by Revenues in the World during 2001

1.	Intel, the US	6	Samsung, South Korea
2.	Toshiba, Japan	7	Motorola, the US
3.	NEC, Japan	8	Hitachi, Japan
4.	Texas Instrument, the US	9	Infineon, France
5.	ST Microelectronics, France	10	Philips, Holland

Source: SIA / ICRA

Industry experts (like Semiconductor Industry Association of the US) expect the revenues to grow by 15% till 2005.

Industry Key Success Factors

- **Financial Strength**

The global semiconductor fabrication facilities that employ sub-micron technologies are capital intensive. A global capacity plant capable of 240,000-wafer fabrication per annum requires US\$2 billion to be set up.

- **Constant Improvement in Price/Performance Ratio of Chips**

This is a function of chip miniaturisation and increasing functionality of output at the same time.

- **Redundancies in Critical Process Equipment**

This helps reduce the product development cycle time and ensure international delivery schedules. These two aspects are critical for survival in the international market.

- **Availability of Standard Products in Portfolio**

The mass consumed standard application specific products help increase capacity utilisation and bring down unit costs of production.

Indian Semiconductor Industry

The Indian SC industry saw a modest beginning during the 1970s, catering largely for the defense and strategic electronics sector. Subsequently, consumer electronics became a major user industry for domestically manufactured SCs. Indian SCs still find little use in the telecom and IT industries, unlike the global scenario where communication and IT industries are the major demand drivers. In recent years, the focus of the successful Indian SC industry has been on niche exports and contract manufacturing.

The Indian SC production during the year 2001 was around Rs. 450 crore as against the total domestic market demand of Rs. 1,800 crore. The share of India in the global SC market is, therefore, negligible.

The Indian SC industry production increased by 30% during 1999. This is well above the average growth of 8% to 10% experienced in the previous two years that were marked by virtual stagnancy in real dollar terms.

In contrast, the overall market demand for SCs is increasing at a fast pace, powered by Ics, whereas the growth in demand for discrete devices is diminishing. Industry experts project this growth in SC demand to be of the order of 20%-25%. These high growth rates are translating into a massive demand supply gap for SCs which is widening at a fast pace.

Indian Market Characteristics

Small size and fragmentation characterise the Indian SC industry. In FY2001, the domestic demand was of the order of US\$300 million, out of which 75% was met by imports. The small size of the domestic market is a result of very low

levels of digitalisation and adoption of electronic devices in the economy. The small domestic market size has been a deterrent for large-scale investments in manufacturing facilities in India, as a result of which, the country has no integrated VLSI chip facility that can match the global size.

Moreover, the market is fragmented into different types, which also makes it difficult to achieve economies of scale for production. This “type” diversity is responsible for even a major overseas company not being able to capture a significant share of the Indian domestic market.

Given the lack of scale, Indian producers are not able to match the global players on cost competitiveness. The low import tariffs on SC devices along with the high cost of domestic production, especially for standard chips, is the reason behind most of domestic demand being met by imports.

In spite of the availability of cost-effective technical talent, the small and unremunerative size of the domestic market does not offer incentive to invest in basic research. In the absence of any significant R&D effort, the competitiveness of the domestic chip industry is further eroded as a critical success factor in the international market is improvement in the price/performance ratio.

India in the Global SC Industry Value Chain

The global SC industry value chain is graphically depicted below:

Global SC Industry Value Chain



Source: ICRA

The Indian SC industry work can be classified as:

- IC Fabrication (includes testing facilities)
- IC Design

Present IC fabrication in the country is done mainly at SCL, Punjab; BEL, Bangalore; ITI, Bangalore; and Gallium Arsenide Enabling Technology Centre (GAETEC), Hyderabad.

The process line at BEL is primarily based on bipolar technology compared with Complimentary Metal Oxide Semiconductor (CMOS) technology at SCL and ITI.

In terms of infrastructure and process technology, the facility at SCL is the most modern in the country. The process technology at SCL is 1.2 micron/ 0.8 micron whereas the cutting edge process technology globally is at 0.18 micron level. While this cutting edge technology is employed for the production of high-density memory ICs, there are market segments that are still being addressed by close to 1/ 0.8 micron technology.

In IC design area, however, India has a distinct advantage in terms of availability of cost-competitive technical talent. Banking on the technical talent available in the country, various SC majors such as Texas Instruments, ST Microelectronics, Motorola, Analog Devices, Cypress, etc., have set up design centres in India primarily for their captive consumption.

Currently, India contributes only around 0.5% to the total world IC design market, whereas it has the potential to capture a much higher share of this market to become a world player in this area.

Policy and Regulatory Framework

The GoI has adopted a policy agenda, which aims to invite global participation in the field of ME. Foreign direct investment (FDI) to supplement domestic investment for achieving a quantum jump in growth is now an integral part of GoI policy initiatives. There is an effort to simplify and make the procedures of industrial, trade and fiscal policies relating to the microelectronics sector more transparent. The salient features of the industrial policy for the Electronics and IT sector are:

- Licensing virtually abolished except for manufacturing aerospace equipment. Recent private sector entry into defence manufacturing permitted.
- There is no reservation for PSEs in the electronics industry and private sector investment is welcome in every area except aerospace and few strategic defence industries.

- Electronics and IT units can be set up anywhere in the country subject to clearance from the authorities responsible for control of environmental pollution and local zoning and land use regulations.
- Industries exempted from licensing are only required to file information in the prescribed Industrial Entrepreneurs Memorandum (IEM) with the Secretariat for Industrial Assistance (SIA), Ministry of Industry, GoI.

Automatic FDI Approval for Technology Collaboration

The Reserve Bank of India (RBI) grants automatic permission for foreign technology agreement in all areas of electronics and IT provided Lumpsum payment of the price of the technology does not exceed US\$2 million; and Royalty payments (net of taxes) do not exceed 5% of domestic sales and 8% of exports.

FDI Proposals for EHTP, STP, EoU and EPZ

Foreign investment up to 100% is welcome in the electronics/IT and software industries set up exclusively for exports. The units set up under these programmes are bonded factories eligible to import, free of duty their entire requirement of capital goods, raw materials and components, spares and consumables, office equipment, etc.

Removal of Quantitative Restrictions

Quantitative Restrictions (QRs) have been removed bringing an end to the QR regime. Prominent electronics items which have been made freely importable are CD players, color picture tubes, populated PCBs, microwave ovens, projection TVs, loudspeakers and push-button telephones.

Customs Tariff Structure

The customs duty applicable to the SC industry varies between 0% and 5%. Special Additional Duty (SAD) of 4% continues. Raw materials and inputs for electronic components attract a customs duty ranging from 5%-35%. These tariff levels are gradually being brought in line with the average international levels in a phased manner with a target peak rate of 20% in next three years. India is also a signatory to the Information Technology Agreement (ITA) of the WTO with a commitment to bring down customs tariff on IT hardware products to 0% by 2005.

Recognition and Protection of Intellectual property rights

Design of ICs requires considerable expertise and several hundreds of man-years of effort depending on their complexity. Such efforts culminate into the layouts for ICs, which are used for fabricating the ICs in the fabrication plants. To encourage continued technological advancement in the field of ME, protection of Intellectual Property Rights (IPR), embedded in the layout design, is of utmost importance. The majority of countries that attach significance to protection of IPRs in the SC ICs provides for a *sui generis* (unique) protection of layout-design of ICs, which is usually contained in a separate Act.

The existing practice of providing protection through the method of Copyright/Patent does not exactly accommodate the requirements of IPRs protection for the layout-design of ICs. This is because in the context of layout design the concept of 'Originality'/novelty is of utmost significance. While the Patent Law required that the idea should be original as well as novel, the Copyright Law is too general to accommodate the original idea of scientific creation of layout-design of ICs. Realizing this weakness in the existing law, the GoI recently passed the Semiconductor Integrated Circuits Layout-Design Bill.

This Bill is expected to serve as an incentive for investments in basic R&D in the field of SC in India.

It can, therefore, be concluded that an investor-friendly regulatory framework exists in India with regard to the SC industry and the lack of competitive domestic production facilities are a result of the market rather than regulatory and policy constraints.

Outlook for Indian SC Industry

The Indian SC industry has the potential to contribute to the global IC market given the country's distinct advantage in terms of its human resources' potential. While this HR strength has been exploited in the software area, in the case of IC design it has only begun. At present, there are 2,500 IC designers in the country while the requirement is around 5,000 designers a year, which is likely to double in future. India has the potential, according to an ICRA estimate, to capture 15% of the IC design market compared with the current 0.5%.

In IC fabrication, which is a highly capital intensive area, lack of scale economies are likely to continue in the near future as the domestic market would not justify

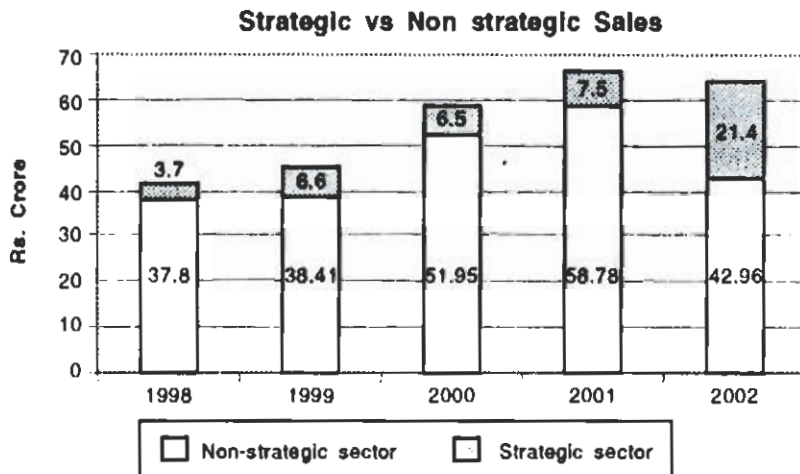
a global scale plant. However, certain emerging markets such as Smart Cards, the biggest clients of which would be the Government and Micro Electronic Mechanical Semiconductor (MEMS) could emerge as a promising growth area for the domestic SC industry.

OPERATING PERFORMANCE

Division Between Strategic and Non-Strategic Sales

The division between SCIL's strategic (defence, space and atomic energy related areas) and non-strategic sales is shown below:

Strategic & Non strategic Sectors' Contribution to Sales



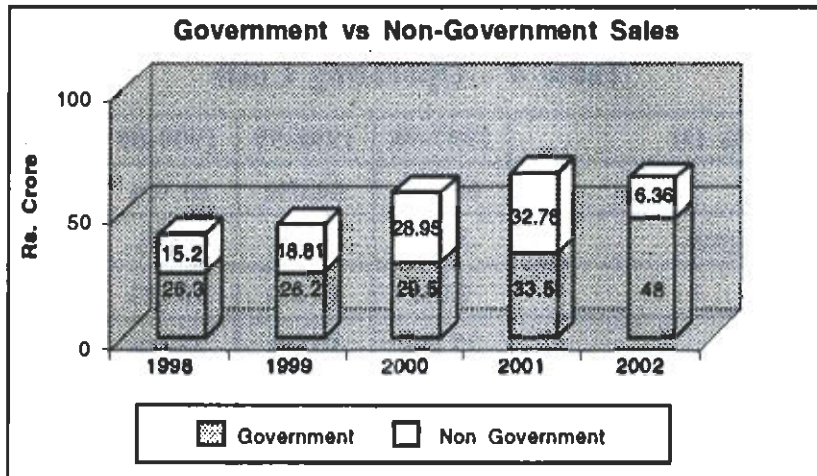
Source: ICRA

As indicated in the figure above, the major contribution to SCLs sales comes from the non-strategic sector. Historically, the strategic sector has not contributed more than 10-15% any year to SCLs total sales. The only exception has been FY02 when the share of strategic sales jumped to over 30%. This came about as a result of product development work undertaken for the sector, over and above the fabrication work and the high sales value in that year is reflective of the process and design development done. One important objective of SCL still remains production of VLSI products, to fulfil strategic needs of the country in the area of microelectronics.

Division between Government & Non Government Sales

The contribution of SCL's sales to Government & Non Government sectors is shown below:

Division between Government and non-Government Sales



Source: ICRA

As is evident, the bulk of SCL's sales are meant for the Government sector. The growth in commercial sales that is non-strategic in nature has been achieved mainly in the Telecommunication & Industrial products segments. In telecom related sales SCL has mainly supplied products to BSNL & MTNL who are the biggest purchasers in the country, by value of equipment purchased. In the Industrial segment division SCL has sold electronic meters to State Electricity Boards. In the short to medium term SCL's exposure to the Government sector is expected to continue given the fact that telecom and Industrial products have been identified as growth segments by the company, and the Government sector is the biggest source of demand for such products.

Composition of Turnover

The company's core business operations are classified into three broad business divisions namely: VLSI Division, Systems Division and Trading & IT Services Division. The performance of each of these Divisions (in terms of contribution to the overall turnover) is shown in the Table below:

Table 3 - Composition of Turnover

(Rs crore)	1999-00	% of Total	2000-01	% of Total	2001-02	% of Total
VLSI Division	37.75	64.6	45.75	69	45.62	71.2
Systems Division	5.43	9.3	10.53	15.9	11.25	17.6
Trading & IT Services	15.25	26.1	10	15.1	7.17	11.2
Total Sales	58.45	100.0	66.28	100.0	64.04	100.0

Source: Annual Report s / ICRA

The trends in operating costs over the past five years is shown in the Table below:

Table 4 - Operating Costs

Operating Cost as% OI	1997-98	1998-99	1999-00	2000-01	2001-02
Raw Material Cost	69.0%	64.0%	61.0%	57.0%	48.0%
Consumables and Stores	3.0%	5.0%	2.0%	2.0%	3.0%
Power and Fuel	7.0%	13.0%	10.0%	10.0%	10.0%
Employee Cost	27.0%	30.0%	22.0%	25.0%	32.0%
Admin and Other Expenses	8.0%	9.0%	6.0%	5.0%	0.0%
Selling and Distribution Expenses	1.0%	25.0%	1.0%	1.0%	6.0%

Source: ICRA

The operating costs of SCL have declined steadily in the past five years, mainly on the back of improving capacity utilisation levels and changing product mix. The growth in the commercial sector products has helped improve the existing capacity and, at the same time, the nature of these products has resulted in reduced material costs.

The cost of sales per unit of revenue, which stood at Rs. 1.50 for the company in FY1999, has come down to Rs. 1.07 in FY2001. Raw material cost constitutes the major share of expense incurred by the company followed by employee cost. There has been an increase in employee cost in real terms largely because of increase in welfare expenses (2001-02) and wage revisions. Selling & Distribution expenses have historically been very low, reflecting the lack of marketing initiative and focus by the company. The jump in marketing expenses in FY2002 is on account of increased provision for bad debt and is an extraordinary item.

The operating income of SCL has recorded a steady improvement since 1997-98 the only exception being FY2002, which recorded a negative growth. SCL's sales grew by 28% in FY2000, which slowed down to 11.9% in FY2001. The growth has been negative in FY2002, mainly due to global slowdown in demand for technology-related products.

The operating margins of the firm have been negative for all the five years under review though, the trend shows a gradual decline in the level of losses since FY1999.

The operating level losses have been decreasing in the period under review due to reduction in operating costs, brought about by better capacity utilisation, and market development in the commercial sector.

FINANCIAL PERFORMANCE

The financial performance of SCL is characterised by negative profitability levels. The level of losses has, however, declined over the years. The past financial performance of SCL in terms of its profit and loss account and balance sheet is indicated below:

Table 5 - Profit and Loss Account

Profit & Loss Account, Rs crore	FY1999	FY2000	FY2001	FY2002 ⁽¹⁾
Work done for year	41.10	54.14	59.94	57.74
Traded Goods Sales	0.00	0.00	0.00	6.30
Less : Excise Duty	-3.70	-5.24	-6.28	-5.18
Net Sales	37.40	48.90	53.66	58.85
Other Related Income	3.93	4.33	6.36	6.36
OPERATING INCOME	41.32	53.23	60.02	65.21
Materials cost	11.98	17.23	19.74	21.69
(Accr.)/Decr. To Stocks	1.84	-0.42	-0.12	-0.31
Purchases	14.51	15.11	14.53	6.70
Consumable Stores	2.18	1.20	1.26	1.56
Power and Fuel	5.38	5.41	5.92	5.75
Employee Costs	12.57	11.61	15.06	18.82
Other Manufacturing Expenditure	4.08	8.97	8.81	8.99
Administrative and Other Exp.	3.80	3.28	3.01	2.82
Selling & distribution expenses	10.34	0.30	0.37	3.59
Misc. exp. W/o				0.03
Less : Expend. Capit.	-3.10	-3.72	-3.72	-4.26
COST OF SALES	63.56	58.98	64.86	65.37
OPBDIT	-22.24	-5.74	-4.84	-0.16
Interest and Finance Charges	0.03	0.04	0.08	0.10
OPBDT	-22.27	-5.79	-4.93	-0.26
Depreciation	20.19	21.12	20.66	17.55

...contd.

Profit & Loss Account, Rs crore	FY1999	FY2000	FY2001	FY2002 ⁽¹⁾
OPBT	-42.46	-26.91	-25.58	-17.81
Non – operating Income	14.49	14.49	14.05	12.86
APBT	-27.97	-12.42	-11.53	-4.94
Tax				
APAT	-27.97	-12.42	-11.53	-4.94
ACCRETION TO RESERVES	-28.05	-13.06	-8.97	-4.94
NET CASH ACCRUALS	-7.86	8.06	11.69	12.64

Note: (1) Derived

Source: ICRA

Table 6 – Balance Sheet

ASSETS, Rs crore	FY1999	FY2000	FY2001	FY 2002 ⁽¹⁾
Gross Block	225.28	226.40	233.19	237.46
Less : Depreciation	(44.77)	(65.89)	(87.20)	(107.39)
Gross Assets Post Depreciation	180.51	160.51	145.99	130.07
Less : Lease Adjustment Account				
Net Block	180.51	160.51	145.99	130.07
Capital Work in Progress	1.16	2.50	2.28	0.62
NET FIXED ASSETS	181.68	163.01	148.27	130.69
Investments (NSC/GOI)	2.00	2.00	—	
TOTAL INVESTMENTS	2.00	2.00	—	
Raw Materials	3.43	3.11	4.67	2.00
Finished Goods	1.12	0.74	0.92	3.41
Work in progress	2.12	2.92	2.85	1.05
Other Inventory	1.21	0.73	0.65	0.96
TOTAL INVENTORIES	7.88	7.50	9.09	7.43
Receivables (More than 6 months)	11.60	11.49	11.11	—
Receivables (Less than 6 months)	16.73	14.07	16.73	23.98
Less: Provision for Doubtful Debts	(9.47)	(9.47)	(9.56)	
TOTAL RECEIVABLES	18.87	16.09	18.28	23.98
Cash and Bank Balances	60.97	56.79	57.03	65.56
Security Deposit with project authorities	17.75	18.03	11.91	14.71

...contd.

ASSETS, Rs crore	FY1999	FY2000	FY2001	FY 2002⁽¹⁾
Advances recoverable in cash/ kind/value to be received	4.99	5.04	5.26	
Loans to Employees	0.95	0.92	0.94	
Interest receivable/accrued	6.70	2.96	2.56	8.96
TOTAL OTHER ASSETS	91.36	83.74	77.70	89.23
TOTAL CURRENT ASSETS	118.11	107.32	105.07	120.64
TOTAL ASSETS	301.79	272.34	253.35	251.32
Equity Share Capital	188.42	188.42	188.42	188.42
Capital Reserve	20.72	20.72	20.72	74.69
Share Premium Reserve				
Special Reserve	85.80	74.92	64.62	
Investment Allowance Utilised Reserve	4.88	3.38	0.96	
General Reserve	2.25	3.76		
Profit & Loss Account	-22.63	-35.69	-38.49	-48.14
GROSS RESERVES				
Less : Misc Expenditure not w/o	-0.24	-0.20	-0.16	-1.12
NET RESERVES	90.79	66.89	47.65	25.43
TANGIBLE NET WORTH	279.20	255.30	236.06	213.84
TOTAL LONG TERM DEBT	0.00	0.00	0.00	0.00
TOTAL SHORT TERM DEBT	0.00	0.00	0.00	0.00
Bank Overdraft	3.10	1.46	0.03	
Sundry creditors	8.30	4.08	6.49	4.48
Security Deposits and earnest money Deposit	1.56	1.45	1.06	
Advance from customers	0.69	1.29	4.45	28.69
Other liabilities	7.41	7.15	3.64	2.68
TOTAL OTHER LIABILITIES	21.06	15.43	15.66	35.85
TOTAL PROVISIONS	1.52	1.61	1.62	1.62
TOTAL CURRENT LIABILITIES	22.58	17.04	17.28	37.48
TOTAL LIABILITIES	301.79	272.34	253.35	251.32

Note: (1) Derived

Source: ICRA

The company has been making net losses in the period from FY1998 to FY2002 as shown in the Table below, though the quantum of losses has been coming down from FY1999 onwards, on the back of improving operating margins.

Table 7 - Trend in profitability

(Rs. in crore)

Year	1998	1999	2000	2001	2002
Operating Losses/Income	-5.83	-22.24	-5.74	-4.84	-0.16
Depreciation	2.35	20.19	21.12	20.66	17.55
Non-operating Income	7.80	8.35	7.51	6.88	5.90
PAT	0.22	-27.97	-12.42	-11.53	-1.20

Source: ICRA

SCL has cash position of around Rs. 65 crore. Almost 40% of this is reflected by the equity infusion from the Government that came as cash inflow at the time of investments for the new fabrication facility. This amount is utilised by the company for meeting special expenses in the field of R&D and capital investments.

SWOT ANALYSIS

Strengths

- SCL has indigenously developed process and design technologies and demonstrated the same through development of products for different market segments. The company has built an expertise in the country to develop newer technologies/products to fulfil the strategic needs of the country in the vital area of microelectronics. It is also understood that the cost of such development has been significantly lower vis-à-vis the cost of imports of such niche products.
- Almost 20 years experience and rich exposure to different aspects in design, development and production of VLSIs.
- Undertook in-house technology upgradation moving from 5 μ to 0.8 μ , capable of developing deep sub-micron technologies (<0.5 μ), with upgradation in equipment and facility.
- Developed specialised technologies such as EEPROM, CCD, in-house, in close collaboration with Defence, Space and the Atomic energy establishments.

- Demonstrated capability in engineering microelectronic products from concept to completion; 86 products developed till date.
- Though the SCL plant is sub-optimal in scale, it is modern and can be upgraded to match international standards.

Weaknesses

- Lack of global-scale renders SCL uncompetitive in the export market, since the international players enjoy scale economies in standard mass products.
- Market reach is limited to domestic only and heavily dependent towards ASICs.
- Absence of any mass consumption standard product that could be loaded on the fabrication unit to increase capacity.
- High product development cycle-time due lack of redundancy in the fabrication line.
- Unable to secure foundry service orders from overseas fabless companies. which demand international delivery period.
- Technology is not front-end.
- Though capacity is small, it is still not fully utilised, since ASICs being the main product, it does not require large number of wafers.
- Present levels of operations do not cover operating costs. Government funding necessary to sustain operations as well as undertake R&D activities.
- Small and fragmented nature of Indian microelectronic market is a hurdle in attracting offers of JV from overseas companies.
- SCL finds it difficult to retain qualified manpower that has the choice of more remunerative jobs overseas.

Opportunities

- Could leverage the research & design set-up and capabilities for providing cost-competitive development services all over the globe.

- With the emergence of products such as smart cards, SCL has the potential of capturing a standard mass produced product that would help it increase the capacity of its fabrication facility.

Threats

- Cheap imports would continue to be of concern for standard products, given the advantage of scale economies enjoyed by global players and the trend in import tariffs, which have been decreasing:
- Retaining highly skilled and readily employable technical manpower in view of more remunerative opportunities available to them elsewhere.

To conclude, SCL does not have sufficient infrastructure capabilities to lower production costs to comparable global scales and is likely to remain inherently uncompetitive with respect to exports in the near future. However, the company has a utility as far as the country's strategic sector needs are concerned.

Though SCL's business operations do not directly fall under the definition of strategic businesses, it is a feeder industry for the strategic sectors such as Defence, Space & Atomic energy. In terms of revenue, the strategic sector accounts for 10%-15% of SCL's topline. SCL has been instrumental in supplying certain extremely mission critical ME components to the Defence, Space and Atomic Energy sectors. There are certain issues that assume importance in the national interest, given the nature of work being done by SCL. These issues are discussed below:

Threat of Embargo

This is a development that can adversely impact many programmes of national interest, especially if the success of the programmes is critically dependent on transfer of technology from other countries. There have been instances in the past when India had to face international embargo. When this fact is reviewed in the context that such embargo can have the potential to compromise the defence preparedness of the country, there is a case for ensuring that certain indigenous capability is built and sustained in the field of microelectronics, especially SCs.

Though the strategic sector, especially defence, relies heavily on the private sector for many of its supplies, it is required to make a clear demarcation between

products of standard nature and products developed for serving a special purpose. Most of the private participation today is limited to the supply of standard products that can be mass-produced and, therefore, there is a business case that appeals to the private enterprise. The strategic sector has clearly relied more on public enterprises such as SCL, Electronics Corporation of India (ECIL), etc., to supply their specialised requirements.

In the past, SCL has undertaken supply of certain custom designed products for the strategic sector that required design development and process technology in close collaboration with strategic sector clients, keeping in mind the application output and finally fabricating and producing the final product. Such products, in addition to reticence on the part of the strategic sector to share design information with private parties, present a challenge for the private sector from two points.

First, there is no private facility in India that has a comparable R&D set-up; and second, development and supply of such special products do not present a business case for the private enterprise. Since these are not standard products, the returns to scale would not be attractive.

While evaluating possible buyer interest, it needs to be considered whether a plant of SCL's scale and size hold any interest for the private sector. Such buyer interest needs to be assessed keeping in view the following factors:

Constraints of Scale and Lack of Process Redundancy

The Indian semiconductor market is small and highly fragmented. The domestic market alone does not justify the existence of a plant of SCL's scale. SCL plant is around 1/12th the size of a global-scale plant, and even the existing capacity is not fully utilised. ICRA's projections show that the plant is unviable even at 60% capacity utilisation. Also, given the fact that the plant lacks redundancies in certain critical process equipment, capacity utilisation beyond 70% does not appear technically feasible. Subsequent capacity enhancement would require substantial investments in creating redundancies.

Lacks Global Miniaturisation Levels

The export market requirements are characterised by sub-micron technology (<0.3 μ), whereas the SCL plant works on 1.2 μ and can go down to 0.8 μ . Any further lowering of geometry would require substantial investments in equipment. Hence, a possible foray into the exports market comes at a huge price. The domestic chipmakers that service the export market have carved out niches for

themselves (especially in low technology areas) and their operational viability hinges on lean operations with their own direct involvement only in areas of competitive advantage. The remaining activities are outsourced or sub-contracted by them resulting into cost advantages.

Given this scenario, acquisition of SCL does not appear to be prima facie attractive for any potential buyer.

The costs involved in importing or outsourcing similar applications from abroad are very steep. In the course of its analysis, ICRA found that, in the case of certain special applications developed by SCL for the space sector, the cost of importing works out to almost 70 to 80 times, according to an analysis done. The main reason for this price differential lies in the low-cost but competent design capabilities available within SCL.

In many instances in the past, the defence sector reportedly faced a situation when the supply of certain components either dried up or could not be relied upon for uninterrupted supply. In such situations, the components were indigenously developed through the combined efforts of SCL and the defence sector.

Given the fact that SCL is the only VLSI facility of its kind in the nation that can meet certain specific requirements of the strategic sector, with no feasible alternative present either in the domestic or international market, disinvestment of SCL does not appear to be a desirable at this stage.

In such scenario, the options for restructuring SCL could be the following :

- Retain Research & Design facilities;
- Hive-off part of the facility to optimise costs;
- Manpower rationalisation; and
- Merge with similar facilities in the public/private sector.

Retain R&D capability

By retaining the R&D facility and hiving-off/closing the balance facilities, the GoI could retain control over design and process technology development for the strategic sector. The R&D set up could also be utilised to undertake projects for commercial clients on a cost plus basis and this option would cut losses for the GoI.

Since similar fabrication facilities do not exist in the country, a case for closure of the balance SCL facilities is not desirable. This implies that the balance facilities would have to be sold to a private party, albeit with certain special Non-Disclosure/Secrecy agreements built in to cater for strategic sector needs. The possibility of part sale is addressed below.

Sell part of the facility

Selling part of the facility does not appear to present a business case for a private party. The SCL plant is of sub-optimal level and inherently inefficient due to lack of redundancies. The technology available with SCL is not sub-micron, which rules out the export market to a large extent. To move to sub-micron level technology would require substantial investments, thus making the deal unattractive for a buyer.

Manpower rationalisation

Analysis by ICRA shows that currently the SCL plant operates at 20% capacity, which is a reflection of market development being the most critical problem. Though at current levels of activity, there is a case for manpower rationalisation, at 50% to 60% capacity utilisation, the current manpower would be adequate. Hence, market development is advised as a preferred mode to make the plant viable.

Merge with facilities engaged in similar business

SCL is the largest facility of its kind in the country. There is no integrated VLSI facility in the country other than SCL. Some amount of similar work is carried out in other government entities such as ITI Bangalore, BEL Hyderabad and GAETEC, Hyderabad. However, the scale of VLSI fabrication related operations in these entities is either non-existent or minuscule compared with SCL. Moreover, barring BEL Hyderabad, none of the above entities are in a financial position to absorb a facility of the size of SCL.

ANALYSING SCL MERGER WITH BEL

Background

Bharat Electronics Limited (BEL) is a listed company with 75.36% of the ownership resting with the GoI. It came into being in 1954 primarily to indigenously meet

the requirements of the Defence sector in the country. However over the years it diversified into commercial sectors also and today its business activities cater to many segments other than defence.

BEL's business activities

These could be roughly divided into defence and commercial sector related

Defence related

Defence Communication;
 Radar & Sonar;
 Opto Electronics; and
 Tank Fire Control System

Commercial segment

Telecommunications (Common with SCL's business activity);
 Sound & Vision broadcasting;
 Solar Systems;
 Electronic components (Common with SCL's business activity); and
 Intel based Motherboard

Table 8 - Snapshot of BEL's Financial Performance

(Rs in million)

Year	FY1999	FY2000	FY2001	FY2002
Sales	12167	15433	17875	20300
Sales growth (%)		25	15	13
PAT	536	1079	1552	1997
PAT growth (%)		101	44	29
Equity Capital	800	800	800	800
Net Worth	4020	4912	6269	7771

Source: BEL Annual reports / ICRA Analysis

BEL has shown healthy sales and profit growth in the period FY99 to FY02. As is evident from the Table 8, BEL is today in a strong financial position as a result

of profitable operations. Its net worth has exhibited regular growth during the above period and stands at Rs 7771 million as of FY02.

Synergies with SCL

BEL undertakes design and manufacture of micro-electronic components, though the size of these operations is insignificant compared to its total operations. Bulk of BEL's operations consists of design, development and manufacture of end use equipment for defence and commercial use. Micro-electronic components are an integral part of the equipment being manufactured by BEL and it has outsourced the bulk of its requirement.

For standard Integrated Circuits (IC's) it has relied on imports since they are cheaper than the products produced in the country. For certain Application Specific Integrated Circuits (ASIC's), that require VLSIs, BEL has utilised the design and fabrication facilities available with SCL, but such requirements of VLSI applications are few and far between.

The current and proposed scale of BEL's operations and its focus do not warrant investing in a VLSI fabrication facility. As we have discussed earlier the SCL facility lacks the scale required for it to be viable hence any integration with BEL does not seem to offer synergies. Any such merger would apparently increase the cost structure of BEL without a complimentary increase in the topline. Moreover, the SCL facility lacks the scale required for it to be viable; hence any integration with BEL would increase the cost structure of BEL without a complimentary increase in its topline and therefore not stand up to financial logic from the corporate view point.

On the positive side, merger with BEL could assist SCL in increasing market shares. Besides being a corporate of strategic importance, BEL is also a significant player in the telecom and industrial electronics segment. While the products offered by BEL to these segments are different from those offered by SCL, the end user segments and customers are the same as SCL. By virtue of its sheer size and range of products offered, it is expected that BEL enjoys a stronger marketing clout with these customers. It is thus likely that SCL's merger with BEL would result in increased market access for the company, thereby resulting in increased capacity utilisation of the facility and reducing losses for the Government.

It is also likely that the cost of administration of SCL would reduce in the event of a merger with BEL due to sharing of common resources. Moreover, BEL being a highly profitable company, would get the benefit of tax breaks against SCL's losses if the latter became a division of BEL.

RECOMMENDATIONS

Keeping in view the facts analysed earlier, and that the strategic nature of business of SCL may need to be sustained in the national interest, the Commission recommends that SCL could be merged with a Public Sector company in a related line of business, like BEL. This merger would eventually result in SCL becoming a division of BEL or a subsidiary. While such a merger would reduce the losses to the Government, it may not make business sense for BEL from profitability view point. The Government would, therefore, need to take a decision in this regard keeping in view the nation's strategic interests on one hand and the financial concerns of the different stakeholders of BEL on the other.

At the same time, efforts to optimise SCL's operations should be undertaken in order to improve its operational viability so that losses could be minimised. Efforts to improve SCL's operational viability should be oriented to increasing the organisation's marketing focus and creating niches in the commercial segment with the potential to load the main fabrication facility. While a merger with a company like BEL could be of help in this regard, other independent measures could include:

- Commercial utilisation of SCL's design and development skills;
- A visible marketing arm/channel that works closely with user segments and proactively provides semiconductor solutions;
- Support under the Market Access Initiative (MIA) programme of the GoI . This programme, which is part of the GoI's EXIM Policy could assist SCL in R&D, market research, specific market and product studies, warehousing and retail marketing infrastructure in select countries. In addition, direct market promotion activities through media advertising and buyer-seller meets could be organized;
- Explore possibilities of charging more remunerative prices from the strategic sector, especially in light of the huge price differentials for equivalent products in the international market; and

In case merger with BEL is not considered feasible, Government could explore the possibility of integration of VLSI facilities of Bangalore (Society for Integrated Circuits Technology & Applied Research) and GAETEC with SCL to achieve synergy and optimisation of resources as well as to strengthen the national capability in the field of semiconductor/micro-electronics.

* * *

2.4 TELECOMMUNICATIONS CONSULTANTS INDIA LTD. (TCIL)

INTRODUCTION

Telecommunications Consultants India Ltd. (TCIL) started in 1978 as a Public Sector Enterprise, to undertake projects in various fields of telecommunications, both in India and abroad. Currently, it is under the administrative control of the Department of Telecommunications (DoT).

The company, over time, moved to executing turnkey telecom projects and evolved as a telecom network solution provider, keeping pace with changing technology. Till a few years back, TCIL's projects were mostly based on copper cables. However, with changing market needs, TCIL has also started executing projects based on optical fibre.

In India, TCIL has been executing projects primarily for DoT, BSNL, MTNL and other infrastructure giants like GAIL and Powergrid Corporation. In the overseas market, TCIL has been offering total telecom solutions in the developing countries of Asia, Africa and Europe.

TCIL started with an equity of Rs.1 million in 1978. The paid-up capital has subsequently moved up to Rs.144 million as on 31st March 2002, held entirely by GoI. It has consistently been a profit making and dividend paying company, and its turnover, in 2000-01, touched an all-time high of Rs. 7762 million. TCIL's net profit in 2000-01 was Rs.588 million.

TCIL was categorised as a Mini-Ratna PSU on 9th October, 1997 and had been accredited as an ISO 9001 certified company on 16th January, 1996 and was subsequently upgraded in January, 1999.

Telecommunications is one of the fastest growing service industries in the world. The last decade has witnessed restructuring of the telecom sector across the globe in terms of adoption of modern technologies. New thrust areas have been identified in terms of adopting state-of-the-art technologies like WLL, GSM, Optical Fibre Access Networks, IT enabled Software Services for billing and customer care, satellite-based networks, Internet, etc.

In order to diversify business risk and use cash generated from existing operations, TCIL entered into various Joint Ventures, the details of which are given in the Table below:

Table 1 – Details of JVs entered into by TCIL

<i>Joint Venture</i>	<i>Share Holding (%)</i>	<i>Amount Invested (Rs. Million)</i>	<i>Other Partners</i>	<i>Product & Services Offered</i>
Hexacom Ltd	30	537.6	1. SCIPL (30%) 2. Shyam Tel (10%) 3. TIW (10%) 4. PCM (10%) 5. MWC (10%)	Cellular Service in Rajasthan
Tamilnadu Telecommunications Ltd. (TTL)	30.7	69.5	1. TIDCO (29.5%) 2. Fujikura (Japan) (14.5%) 3. Public (25.3%)	JFC and OFC manufacture
TCIL Bellsouth Ltd. (TBL)	44.94	8.4	1. BSI (USA) (40%) 2. DSS (15.06%)	Software development in India and abroad
TCIL Saudi Company Ltd. (TSCL)	40	6.7	1. NATEL (40%) 2. Sheikh (20%)	Telecom Network Projects in KSA
Intelligent Communication Systems India Ltd. (ICSIL)	36	3.6	1. DSIDC (25%) 2. OCL (24%) 3. FALCON (15%)	JV for Computer Hardware manufacture in India
TNCL	40%	0.4	Nigerian partner (60%)	Telecom Network Projects in Nigeria

Source: ICRA Advisory Services (ICRA)

TCIL has also signed MoUs with various technology partners to enhance its competitive position. The details are as follows:

- a) *Malawi telecommunications Ltd.* – for supply of material, equipment, C-DOT Exchange, improvement of network and external line plant.
- b) *Zip Telecom* – for tenders floated in India or abroad for Prepaid Card Management Systems.
- c) *HDM Interactive Inc.* – to explore business opportunities and provide such solutions in India in respect of HDM's Public Access Communication i.e. Internet Kiosks.
- d) *Marshals' Super Soft Technology Ltd.* – to explore business opportunities abroad in the field of IT related turnkey projects and training.

- e) *Alcatel Network Systems India Limited* – for “Concept to Completion” projects in all fields of telecommunications.
- f) *VSNL, MTNL & NVPL* – To bid and acquire GSM and basic services licenses using WLL technology in Nepal and formation of a JV company.
- g) *Bharat Sanchar Nigam Limited* – for setting up networking infrastructure for S.B.I.
- h) *Tadiran Electronic Systems* – to supply and install frequency monitoring & management systems.
- i) *Business Development Directorate of Dept. Of Post* – for co-operating in the field of setting up Data Post as well as marketing & customising the Meghdoot Software Product for counter automation.
- j) *Shyam Aces* – for co-operation between the parties for operating GMPCS Services in India.
- k) *SDI Technologies* – for supply, installation & license certain software services and hardware for cellular services.

With increasing competition and changing technology, operating margins for TCIL’s core business areas are falling. In order to meet the challenges, TCIL has engaged a consultant to draw a business strategy for the company. It believes that over a period of time, revenues from telecom network projects are likely to decline. Broadly, TCIL’s future business strategy is as follows:

- Continue focus on Telecom Network and Access projects;
- Enter three to four new countries every year to boost the gross revenues;
- Use the Joint Venture route to get more projects;
- Upgrade skills to meet new technological requirements;
- Diversify into basic services either independently or through Joint Ventures; and
- Enter into Enterprise WANs, IT, Value-added services, Training, and other activities.

In line with its business strategy of entering basic services, TCIL plans to enter into basic operations in countries like Nepal (WLL), Kenya (basic service franchise) and Brunei (cellular franchise) by forming JVs with local operators.

TCIL along with MTNL, VSNL and NVPL (a Nepalese Company) have been successful in obtaining LOI for operating Basic Telecom Services based on WLL Technology in Nepal. TCIL has also achieved success in obtaining LOI for operating basic telecom services in Kenya as the 2nd operator in addition, to Kenya Telecom, in five telecom regions in Kenya. The regulatory issues are under discussion and license agreement is expected to be signed soon. TCIL has been declared as front-runner for buying 51% stake in Malawi Telecom along with MTNL and a local partner.

INDUSTRY ANALYSIS

The telecommunication industry is subject to various types of risks, which are mentioned below. TCIL's fortune being inextricably linked to the industry, is also subject to similar risks as analysed below:

- Country Risk;
- Economic Cycle Risk;
- Technology Risk; and
- Regulatory Risk.

Country Risk

While telecom privatisation is proceeding in most countries of the world, driven by the need to bridge fiscal deficits and improve service quality, the process is fraught with a number of political uncertainties. TCIL, being a global player, may suffer from adverse political developments in various countries. Further, the overseas operations of TCIL are predominantly in developing countries, which are prone to political uncertainties.

Economic Cycle Risk

Economic downturn affects profitability of telecom service companies and its cascading effect impact other players in the telecom industry in the medium term. Currently, the industry is facing a downturn, with overcapacities in many

developed countries. This has resulted in no major investments by the telecom majors in emerging markets, consequently affecting TCIL's business.

Technology Risk

Service providers around the world are building and operating a wide range of alternative access networks. The access network (local loop or the last mile) refers to the physical circuit between the customer's premises and the telecommunications operator's local switch or equivalent facility. It is difficult to predict which of these alternative access networks will succeed in the mass-market segments. The various alternative access networks that are available are as listed:

- Copper-based wireline;
- Optical fibre-based wireline;
- Cellular networks;
- Narrow band wireless local loops;
- Broadband wireless local loops;
- Satellite;
- Cable; and
- Electricity distribution networks.

Traditionally, access networks have taken the form of pairs of copper wires (one pair per normal telephone line). This is called a fixed (wireline) access network. For large business subscribers, fibre is now progressively replacing copper. However, fibre is not generally used to access households. The configuration of fixed networks yields a cost structure that is geared towards sunk costs; heavily skewed towards fixed costs; and incorporating a relatively high component of non-traffic sensitive costs. An increase in subscribers and area served will reduce unit costs. There are also substantial economies of density: connecting more subscribers in a given service area with lower unit access costs.

Compared with wireline technologies, wireless (CDMA/GSM) telecommunications services exhibit a different cost structure. The key difference is that the initial fixed investment in a wireless system is much less than a wire-based network. When traffic is low, base stations can be relatively distant from one another without overloading the available spectrum. As traffic grows, more base stations

are required, in order to split and reduce the size of existing call areas, thereby allowing the reuse of frequency in the limited spectrum available. In comparison to fixed networks, the long-run costs are weighted far more heavily towards the traffic sensitive category. Moreover, a relatively small proportion of capital investment is sunk, as base stations can be sold and relocated.

The steady decline in per unit cellular network cost is driving prices down and, therefore, wireless is emerging as a viable last mile alternative to fixed line networks:

Table 2 -Prospects of Alternative Access Networks

Alternatives	Prospects in Corporate Markets	Prospects for Mass Markets
Cellular Mobile	High	High
Hybrid Fibre Coaxial	Low	Low
WLL	Low	Medium
Satellite Access	Medium	Very Low
Electricity	Low	Uncertain

Source: ICRA

It appears evident that wireless network will increasingly provide an alternative to the incumbent operator's fixed access network for certain customers and services.

Impact of Technology on TCIL

Most of the TCIL's projects are still based on copper-based technology. Telecom networks are increasingly shifting to fibre- or wireless-based technologies. In case of Wireless projects, the scope for a project management company like TCIL is rather limited as the work is not labour intensive and involves installation of radio equipment only. Trends towards replacement of copper by fibre is not likely to affect TCIL as the skill sets required for execution of such work are not very different. TCIL is training its personnel to create its ability to execute projects based on other technologies.

Regulatory Risk

Deregulation of Telecom markets the world over have given rise to the need for regulatory agencies in these markets, primarily to monitor and control the process

and conform it with the state's objectives. The success of the deregulation process and the effectiveness of such agencies have been mixed in various countries giving rise to certain regulatory risks imminent with business exposure in these countries.

The table below shows TCIL's competitive position in overseas markets:

Table 3

Regions	Market Overview	TCIL's Presence in the Market
Africa	Level of telecommunication investment is low; while use of wireless technology likely to be high, use of copper and fibre likely to be moderate. High competition is in markets where large telecom investments are taking place, e.g. in countries like South Africa. Other significant markets are Botswana, Kenya, Mauritius, Nigeria and Senegal.	A good number of the overseas projects taken up by TCIL have been in this region.
Arab Countries	Telecommunications MNCs have a significant presence and the latest technologies are being used. There is restrictive regulation with respect to quantum of FDI. Countries, like Egypt and Morocco are the biggest markets in the region.	TCIL has a significant experience in this region.
Asia	High growth in South-East Asian countries. There is potential for growth in South-Asian countries, like India and Pakistan.	TCIL has executed projects in India, Sri Lanka, Bangladesh, Nepal, the Maldives and Bhutan. Most of the large South-East Asian markets are technologically quite advanced and TCIL is not likely to get much of hi-tech projects in the region.
Eastern Europe & CIS	High preference for local companies, allowing foreign manpower is not well encouraged.	Difficult to get business from East European countries. Of the CIS countries, Central Asian countries do not have sufficient expertise, which leaves some scope for TCIL.

...contd.

Regions	Market Overview	TCIL's Presence in the Market
Latin America	High degree of privatisation; extensive use of optical fibre, undersea cabling and wireless technologies.	Difficult market for TCIL due to its inability to offer huge credits and insufficient local experience.
Private operators in India	Scope for fibre optic business through MNCs, who are likely to take up most projects on turnkey basis. Scope for consulting assignments in terms of network planning and design, technology evaluation, feasibility studies, etc. as most of the Indian partners in these ventures are new to the telecommunications field, primarily in low value added areas/job	TCIL is in a strong position because of its vast experience in cable projects across India.
DoT/BSNL	In the coming years, DoT /BSNL is likely to come up with several hi-tech projects.	TCIL, normally, gets projects which are either large or located in difficult terrain. TCIL has not got many hi-tech projects. Tendering process adopted by DoT/BSNL has increased competition for TCIL in terms of getting business from DoT/BSNL.

Source: ICRA

Market Potential

Table 4

Countries	Tele-density *	Mobile density*
Africa	2.48	1.98
Arab States	7	3.24
Asia & Pacific	9.57	6.59
Europe & Asia Minor	39.52	36.56
America	35.19	21.95
World	16.2	12.14

Source: ITU Website / ICRA * Per hundred people

The above Table clearly shows that tele-density is quite low in Africa, the Arab countries and other Asian countries compared with the other regions of the

world. As TCIL is an established player in these markets, there would be future opportunities for TCIL in these markets.

OPERATIONAL PERFORMANCE

TCIL is primarily engaged in executing telecom turnkey projects. In the past, a large part of its turnkey revenue came from copper cabling. However, the mix has changed over the years. TCIL now derives a substantial portion of turnkey revenue from optical fibre cabling. Besides, it is also engaged in the maintenance of networks, providing telecom-related consultancy and leasing of business communication network.

A snapshot of TCIL's revenue streams is given below:

Table 5

<i>Rs mn</i>	96-97	97-98	98-99	99-00	00-01
Turnkey projects	3897	5303	5751	6648	6034
Trade Sales	2	4	40	80	1081
Maintenance projects	174	294	307	71	40
Consultancy projects	213	122	111	197	369
Lease rental income	31	24	19	33	24
Other related income	89	58	85	118	91
Operating Income (OI)	4405	5805	6313	7147	7638

**Other related income includes profit on sale of assets, foreign project incentives, provision for project performance written back and miscellaneous*

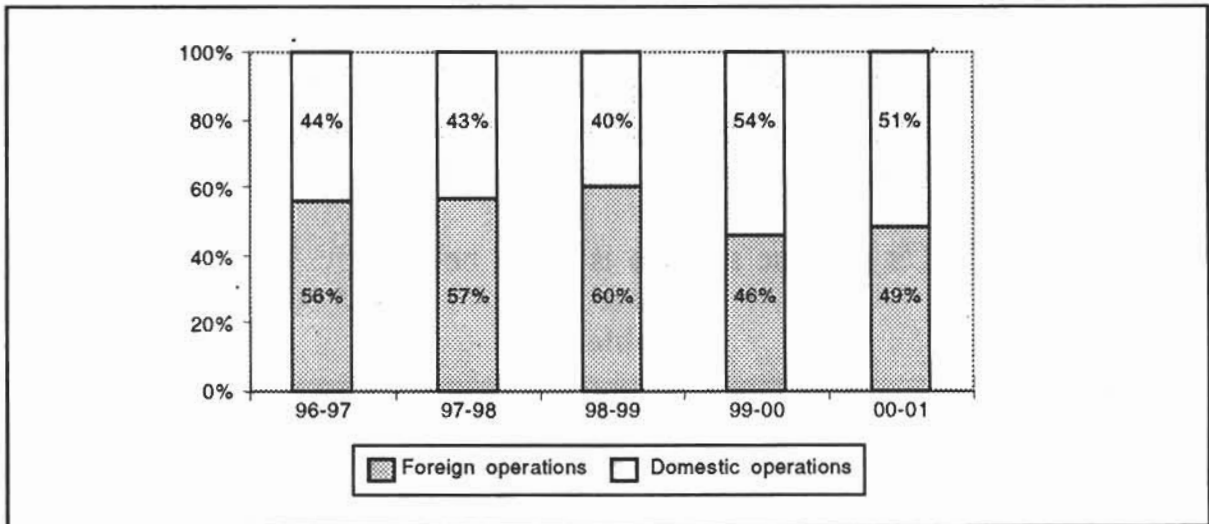
Source: ICRA

OI increased at a CAGR of 14.7% during the last four years. More than 90% of TCIL's OI had been generated from turnkey projects and trade sales related to execution of turnkey projects. Trade sales are on account of equipment procured and supplied by TCIL for execution of its turnkey projects. Other contributors to operating income were revenues from maintenance projects, consulting projects, lease rental income, and other related income. While OI increased every year, a large part of the increase came from turnkey projects and trade sales. While revenues from maintenance projects declined over the years, revenues from consulting projects including trade sales increased, and others showed erratic trends. In 2000-01, contribution to turnover from consulting projects increased

due to a number of IT consulting projects executed for Powergrid Corporation, GAIL, IDBI, etc., as Table-5 would show.

Almost 50% of TCIL's revenues comes from foreign operations:

Table 6



Source: ICRA

TCIL has fairly well dispersed operations in India and outside India. Both domestic and foreign operations contribute almost equally to total revenues. However, the share of foreign operations has been declining over the years, primarily due to increased competition and changing market needs.

In terms of contribution margins, foreign operations yield much higher contribution margins compared with Indian operations. In 2000-01, contribution margins from foreign operations were almost 20% compared with only 4.5% from Indian operations.

Wide-spread overseas operations:

TCIL's foreign operations are spread out in Africa, Asia and Europe. However, major portion of TCIL's revenues from foreign operations came from Africa. While almost 54% of revenues came from Africa, Asia and Europe contributed about 21% and 25% of revenues, respectively in 2000-01. TCIL has no presence in Latin America and North America.

TCIL has presence in the following countries in each region:

Table 7

Regions	Countries
Africa	Madagascar, Mauritius, Zimbabwe, Ethiopia, Malawi, Ghana, Nigeria, Botswana, Mozambique, Togo, Tanzania, Twaziland, Algeria, Kenya, Burkina Faso, Tunisia, Sierra Leon, Congo
Asia	Kuwait, Saudi Arabia, Oman, Yemen, Qatar, Syria, Jordan, Kyrghistan, Bangladesh, Sri Lanka, Nepal, Afghanistan, Indonesia, Cambodia, East Timor
Europe	Netherlands, Italy, Kosovo

Source: ICRA

Almost 73% of TCIL's revenue from foreign operations in 2000-01 came from Mauritius, Zimbabwe, Ghana and contracts for UN Peace Keeping Forces in countries like, Sierra Leone, Kosovo, East Timor and Congo.

TCIL, being a PSE, enjoys patronage of the Indian government. Major clients of TCIL in these countries are Government-owned telecom operators. With the global trend of privatisation touching the Third World countries, it might become increasingly tougher for TCIL to sustain itself in these countries.

Export of Telecom Equipment & Associated Telecom Network:

During 2000-01, TCIL has exported Jointing Kits, Connectors and other Accessories, Duct Sealing Compound, EPABX, Transmission Equipment such as TDMA System and Optical Line Termination equipment, Spares of CorDECT System, generator Sets and Pump Sets to various countries like Kyrgyz Republic, Nigeria, Ghana, Togo, Madagascar, Bangladesh and Ethiopia etc.

Process of securing foreign contracts:

The foreign projects are secured through the competitive bidding by international telecommunication majors such as Alcatel, Siemens, Ericsson etc and TCIL often bids for projects, which are funded by multilateral agencies like World Bank, ADB etc. because of assured payments. TCIL also bids jointly with international players and forms project specific joint ventures for entering new areas and markets. Through JVs, the prospects of increased turnkey projects, consultancy and other works have also opened up, particularly, for RF planning, installation

of BTS, large-scale optical fibre cable systems, IT-enabled e-governance projects. Besides, TCIL sources business through embassies, overseas agents and own Project Directors working abroad. Ministry of External Affairs has been of considerable help to TCIL in securing international orders.

The Success Ratio, which was as high as 50% at one time i.e, TCIL bagged one in every two tenders filed, has subsequently come down to 33% in value terms and 25% in terms of number of projects. This is due to reduction in number of large projects while number of smaller value projects has increased. However, TCIL claims that the success ratio in overseas markets is still good by international standards.

Indian operations

Almost 95% of inland operations are on account of ducting i.e. cabling business, as shown below:

Table 8

(Rs million)

	00-01	% share
Duct	380.07	94.4%
BCN	6.22	1.5%
IT	2.09	0.5%
Architect	0.22	0.1%
Misc.	13.89	3.5%

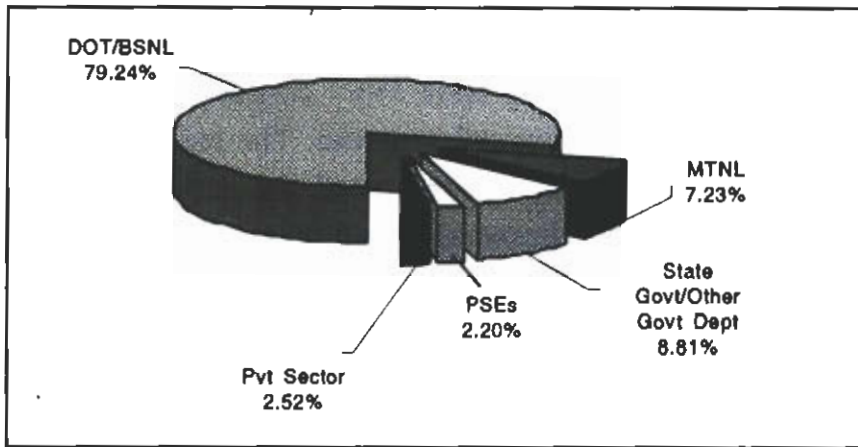
Source: ICRA

The contribution of other activities to turnover is almost negligible. Ducting means laying ducts of copper cables or optical fibre cable. Most of the work is done for DoT, BSNL and MTNL. Contribution of revenue from private clients is insignificant.

Besides DoT/BSNL, TCIL's domestic clients also include MTNL, RailTel Corporation of India Ltd., ONGC, GAIL, Ministry of Defence, State Governments, and various private players like Tata Teleservices, Hughes, BPL, and Bharti Telenet. TCIL's potential clients include Powergrid, Reliance Infocom, etc.

The client wise revenue contribution during 2001-02 was as follows:

Table 9



Source: ICRA

As reflected above, substantial part of revenue is generated from public sector. Contribution to revenues from private sector so far has been marginal.

Process of securing domestic contracts

TCIL undertakes project work for DoT/BSNL and MTNL within India on “Cost plus” basis with margins much lower than what TCIL achieves in competitive Overseas/Indian projects. “Cost plus margin based projects” are also presently determined by TCIL’s participation in tenders with competitive bidding from PSUs like ITI, RITES, NBCC, and HCL on limited basis. TCIL’s business segment is increasingly becoming competitive. While TCIL competes with public sector enterprises like ITI, Hindustan Cables, IRCON, HTL, RITES etc. for DoT/BSNL tenders, it also competes with private sector players like Supreme, Aksh Fibre, L&T, Spectranet group, HFCL, GTL, Tata Power, Tata Teleservices for other segments.

Success ratio has substantially fallen in case of DoT projects. Number of Projects from DoT has also substantially reduced now. The decision making process of distribution of DoT projects has got decentralised except for large value projects. This decentralisation has adversely impacted the volumes and margins of TCIL. TCIL is increasingly opting out of smaller projects and has withdrawn from certain states due to payment problems. The competition in north India is also rising with earlier sub- contractors now becoming direct competitors. TCIL intends to make up the loss in turnover from DoT by procuring jobs from private sector.

Joint Ventures

TCIL has diversified through various Joint Ventures. TCIL has struck alliances with foreign partners and embarked upon JVs / consortium in India and abroad to absorb technological and operational expertise. The reduced order booking by the company for some time past has prompted the company to diversify into operating business by obtaining licences to undertake basic, cellular, internet and other value added services by forming JVs with the parties having proven track records. TCIL has a number of JVs, including two with local partners in Kenya and Nepal. In some of the joint ventures, TCIL also has the management rights.

The details of the Joint Ventures have been shown in Table-1 earlier.

Besides the above stated Joint Ventures, TCIL also has plans to enter into the operational side of telecom business in countries like Nepal (WLL), Kenya (basic service franchise), and Brunei (cellular franchise) by forming JVs with local operators.

Other Joint Ventures

Telecommunication Consultants Nigeria Limited (TCNL), United Telecom Limited (UTL) and Tel-Air in Kenya are some of the Joint Ventures where either paid-up equity has not yet been invested or wherever small equity has been invested, the operations have not yet started.

Prospective JVs in Kenya and Nepal

Kenya: TCIL in consortium with Widestream Communications limited has won the license for providing telecom services in five out of eight regions of Kenya. The project will be executed through a Joint Venture Company: Tel Air Communications Kenya Limited (TCKL). TCIL plans an equity stake of 30% in the venture.

Nepal: TCIL in consortium with Mahanagar Telecom Nigam Limited (MTNL), Videsh Sanchar Nigam Limited (VSNL) and Nepal Ventures Private limited has been awarded the LOI for providing Basic Telecom Services in the Kingdom of Nepal based on Wireless in Local Loop Technology. TCIL plans an equity stake of 30% in the JV.

The joint ventures in Kenya and Nepal are at very advanced stage of deliberations and the operations may be expected to start soon. The regulatory conditions prevailing in these markets are as follows:

Table 10

Parameters	Kenya	Nepal
Entry Conditions	<i>Entry is through JV route and Global Tendering. It provides Duopoly for a period of 5 years. However, regulator has a right to introduce third operator if demand justified</i>	
Restrictions on the Players	<i>Foreign Participation restricted initially to 40%, which has subsequently increased to 70%</i>	<i>Maximum foreign equity holding restricted to 80%</i>
Rollout Obligations	<i>A minimum yearly rollout for urban areas and minimum of 2 public telephone in each of the rural location in the region by 3 years</i>	<i>Minimum Coverage and Line obligations in two imp cities, a minimum of 2 public telephones in each of the adjoining village development council of the city to be covered each year.</i>
NLD/ILD services	<i>Limited NLD services within the licensed service area. ILD to be opened up during 2004</i>	<i>Full NLD services and ILD only for own network. Full ILD operations to be permitted by 2004</i>
Technology Restrictions	<i>No restrictions</i>	<i>Use of only WLL in 800/1900 MHz frequency band permitted</i>
ISO and Data Services Provision	<i>No restriction</i>	
Universal Service Obligation	<i>Limited to rural coverage. The provisions of Universal number portability, emergency services etc also form part of the license conditions</i>	

Source: ICRA

Pros and Cons of the regulations listed above for TCIL to operate as a service provider in these countries are as follows:

- The Duopoly status in service operations in Kenya and Nepal works in favor of TCIL. It is likely to keep the competition at bay for five years giving TCIL a pricing advantage in the gestation period;
- TCIL has a stake of 30% in these Joint Ventures; however the FDI limit is quite high giving the management a flexibility to increase stake, if desired;
- No restriction on Technology application in Kenya makes it flexible to use the best-fit and financially viable technology for the region;

- The NLD license being a part of the current LoI in case of Nepal is an additional positive feature;
- The roll out obligations puts pressure on investment of capital and manpower;
- The Universal Service obligation requires rural coverage as a part of the deal, which may not be remunerative for the company.

FINANCIAL PERFORMANCE

TCIL has been earning profits since its very year of inception. The key financials of TCIL during the last five years are presented below. The balance sheet and Profit & Loss Account of TCIL are given in the following Tables:

Table 11 – Profit & Loss Account

Telecommunications Consultants India Ltd.	Mar 31 1997	Mar 31 1998	Mar 31 1999	Mar 31 2000	Mar 31 2001
<i>Amounts in Millions of Rupees</i>	12 Mths	12 Mths	12 Mths	12 Mths	12 Mths
INCOME STATEMENT					
<i>Turnkey projects excl WIP</i>	2862	4202	7058	6146	4760
Acc/(Dec) to WIP	1034	1101	-1307	502	1274
Trading Sales	2	4	40	80	1081
Maintenance projects	174	294	307	71	40
Consultancy projects	213	122	111	197	369
Other projects	15	5	9	17	3
Lease rental income	31	24	19	33	24
Other Related Income	74	53	76	101	88
Operating Income	4405	5805	6313	7147	7638
Trade purchases	2	3	33	72	900
Project material, stores, spares, tools consumed	2350	3166	2928	3560	2602
Subcontracts	733	864	1424	1721	2123
Employee Cost	363	402	576	507	583
Other expenses	390	446	636	584	658
Provision for doubtful debts/advances	18	5	18	61	21
Bad debts/advances written off	1	0	2	32	14
Loss on scraping of assets	11	2	3	12	2

...contd.

Telecommunications Consultants India Ltd.	Mar 31 1997	Mar 31 1998	Mar 31 1999	Mar 31 2000	Mar 31 2001
<i>Amounts in Millions of Rupees</i>	12 Mths	12 Mths	12 Mths	12 Mths	12 Mths
INCOME STATEMENT					
Provision for slow moving store	0	6	35	0	1
OPITDA	537	911	659	597	734
Depreciation	20	24	37	47	48
OPIT	517	887	622	550	686
Interest Income	93	116	117	163	121
Dividend	0	0	0	3	2
Appreciation in value of investment	0	0	10	0	0
(Depreciation) in value of investment	0	-10	0	0	0
Foreign Exchange Gain/(Loss)	-75	-461	-148	-79	-105
Gain/(Loss) in JV	-23	0	29	0	0
Expenses in JV projects	-13	-16	-2	0	0
EBIT	500	517	628	637	705
Bank & Guarantee Charges	52	35	37	24	23
Interest Expense LTD - Banks/FIs	12	15	22	26	50
INTEREST EXPENSE	64	50	59	50	73
PROFIT BEFORE TAXES & EXTR ITEM	436	467	569	587	632
Income Tax	59	49	68	96	44
PROFIT BEFORE EXTR ITEMS	377	418	501	491	588
Extraordinary Gain/(Loss)	0	0	0	0	0
NET PROFIT	377	418	501	491	588

Source: ICRA

Table 12 - Balance Sheet

Telecommunications Consultants India Ltd.	Mar 31 1997	Mar 31 1998	Mar 31 1999	Mar 31 2000	Mar 31 2001
<i>Amounts in Millions of Rupees</i>	12 Mths	12 Mths	12 Mths	12 Mths	12 Mths
ASSETS					
Cash with SCBs on Call account				67	113
Cash with SCBs on Deposit account				1460	955
Cash for operational purposes				247	258
Cash and Bank Balances	1167	1166	1736	1774	1326

...contd.

Telecommunications Consultants India Ltd.	Mar 31 1997	Mar 31 1998	Mar 31 1999	Mar 31 2000	Mar 31 2001
<i>Amounts in Millions of Rupees</i>	12 Mths	12 Mths	12 Mths	12 Mths	12 Mths
ASSETS					
Debtors outstandings for < 6 months	623	602	1089	1132	1411
Debtors outstandings for > 6 months	438	579	525	742	969
<i>Less: Allow for Doubtful Accts</i>	36	37	51	101	106
Total Accounts Receivable – Net	1025	1144	1563	1773	2274
Advance recoverable in cash or kind	260	369	328	203	168
Interest Accrued on Investments	46	31	29	44	26
Advance Tax	113	219	200	215	220
Work in Process	2013	2219	2000	2324	3158
Stores & Spares	116	210	293	324	384
Total Inventory	2129	2429	2293	2648	3542
Interest accrued but not due on investments	0	12	14	13	15
TOTAL CURRENT ASSETS	4740	5370	6163	6670	7571
Land	0	0	0	0	0
Buildings	0	0	0	0	0
Plant & Machinery	0	80	149	186	208
Other Fixed Assets(incl. land & bldgs)	0	397	485	493	510
CWIP	0	2	0	0	0
Lease Assets	0	70	78	78	75
Gross Fixed Assets	416	549	712	757	793
<i>Less: Accumulated Depreciation</i>	<i>101</i>	<i>128</i>	<i>193</i>	<i>226</i>	<i>260</i>
Total Fixed Assets – Net	315	421	519	531	533
Other Long Term Investments	49	49	49	49	49
Investments in Joint Venture	297	385	512	626	626
TOTAL NON-CURRENT ASSETS	661	855	1080	1206	1208
TOTAL ASSETS	5401	6225	7243	7876	8779
LIABILITIES					
Curr Mat LTD - Banks/FIs	0	33	0	88	0
Sundry Creditors	1709	1819	1983	1944	2484
Acceptances	0	0	0	0	0
Advance From Customers	875	1109	1139	1043	904
Interest Accrued and Due	0	0	0	8	0
Interest Accrued but not due	8.49	0	0	2	6

...contd.

Telecommunications Consultants India Ltd.	Mar 31 1997	Mar 31 1998	Mar 31 1999	Mar 31 2000	Mar 31 2001
<i>Amounts in Millions of Rupees</i>	12 Mths	12 Mths	12 Mths	12 Mths	12 Mths
LIABILITIES					
Proposed Dividends	79	95	168	176	238
Provision for Income Tax	85	116	161	189	147
Other Current Liabilities	599	574	889	834	848
TOTAL CURRENT LIABILITIES	3356	3746	4340	4284	4627
Overdraft	0	0	0	0	0
Working Capital Loan from Banks	0	50	178	617	828
Other Short Term Loans	0	0	0	0	0
Long Term Debt - Banks/ FIs	0	65	65	0	0
Long Term Debt - Others [incl FDs]	0	0	0	0	0
TOTAL SENIOR LT LIABILITIES	0	115	243	617	828
TOTAL LIABILITIES	3356	3861	4583	4901	5455
Equity Share Capital	72	72	72	72	72
Foreign Project Reserve	992	1241	1318	1471	1430
Revenue Reserve	981	1051	1270	1432	1822
Revenue Reserves [incl P&L]	1973	2292	2588	2903	3252
NET WORTH	2045	2364	2660	2975	3324
TOTAL LIABILITIES & NET WORTH	5401	6225	7243	7876	8779

Source: ICRA

Table 13 -Declining operating margins but increasing net profits

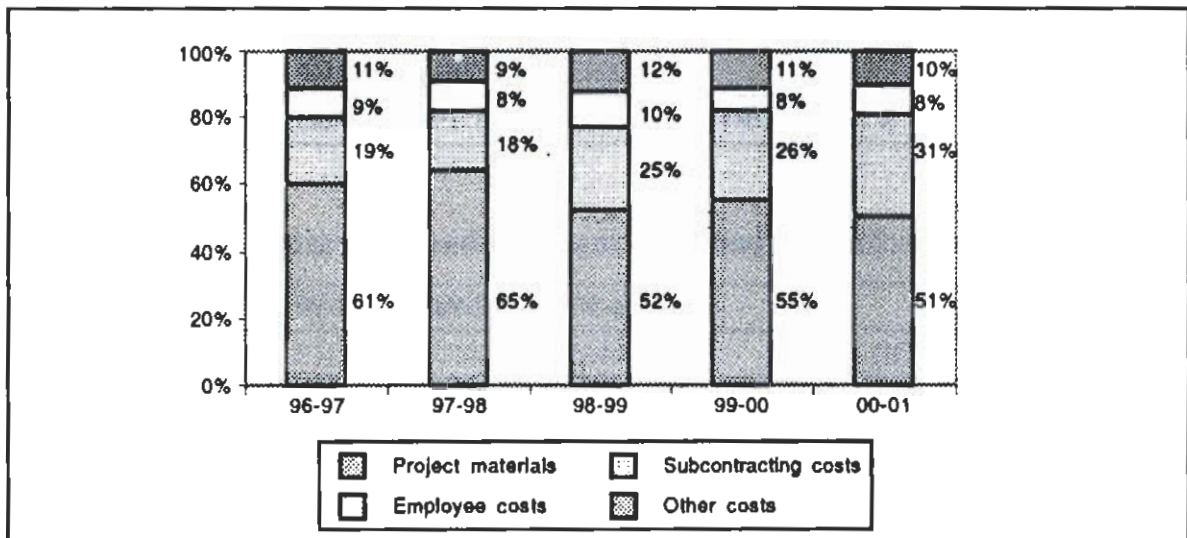
<i>Rs mn</i>	96-97	97-98	98-99	99-00	00-01
Operating Income (OI)	4405	5805	6313	7147	7638
Operating profit before interest depreciation and tax (OPBDIT)	537	911	659	597	734
OPBDIT/OI, %	12.2%	15.7%	10.4%	8.3%	9.6%
Non-operating income/(expenses)	-17	-371	6	88	18
Depreciation	20	24	37	47	48
Interest	64	50	59	50	73
Profit before tax (PBT)	436	467	569	587	632
Tax	59	49	68	96	44
Profit after tax (PAT)	377	418	501	491	588

Non-operating income includes interest income, dividend income, gains or losses on account of joint ventures, and losses on account of foreign exchange fluctuations.

Source : ICRA

TCIL's OPBDIT has been erratic over the years with a declining trend. However, net profit has increased consistently. While the primary reason for erratic OPBDIT trend has been fluctuation in operating margins with a declining trend caused by increasing competition and change in mix of nature of contracts, net profit has increased due to variations in non-operating income/(expenses). Non-operating income/(expenses) was significantly negative in 1997-98 due to high foreign exchange losses incurred by TCIL erratic OPBDIT trend has been fluctuation in operating margins with a declining trend caused by increasing competition and change in mix of nature of contracts, net profit has increased due to variations in non-operating income/(expenses) was significantly negative in 1997-98 due to high foreign exchange losses incurred by TCIL caused due to South-East Asian crisis. TCIL is a low financial risk company as reflected from its steady and small outgo of interest expenses compared to its OPBDIT. Interest, as a percentage of OI is about 1%. TCIL is a low-tax paying company mainly because it extracts a large part of its income from foreign operations, which is exempted from tax. More than 80% of expenses are on account of variable costs like project material and subcontracting costs, as illustrated in the Table below:

Table 14



Source: ICRA

The share of subcontracting costs has increased over time. TCIL normally prefers to subcontract civil works and carry out the integration work of its own. High tech work is not subcontracted.

Interest income has been a substantial contributor to net profits in the past as the table below shows:

Table 15

<i>Rs mn</i>	96-97	97-98	98-99	99-00	00-01
Interest income	93	116	117	163	121
PAT	377	418	501	491	588
Interest income/PAT	25%	28%	23%	33%	21%

Source: ICRA

Income from Joint Ventures has been almost negligible.

Table 16

<i>Rs mn</i>	96-97	97-98	98-99	99-00	00-01
Dividend	0	0	0	3	2
Other gains/(losses) from JVs	-35	-25	37	0	0
Investments in JVs	297	385	512	626	626

*Dividend income from TTL, other gains/ (losses) are on account of proportionate share of gains or losses from foreign projects

Source: ICRA

TCIL has been a consistent dividend paying company with dividend outgo increasing each year, as shown below:

Table 17

<i>Rs mn</i>	96-97	97-98	98-99	99-00	00-01
Dividend	72.0	86.4	151.2	158.4	216.0

Source: ICRA

Financial position reflects low gearing, high working capital intensity, high investments and cash balances:

Table 18

<i>Rs mn</i>	31/3/01	<i>Rs Mn</i>	31/3/01
Net worth	3324	Net Fixed Assets	533
Loans	828	Investments	675
Creditors	2484	Inventory	3542
Other liabilities	2143	Debtors	2274
		Cash and Bank	1326
		Other Assets	429
Total Liabilities	8779	Total Assets	8779

Source: ICRA

TCIL's business is highly working capital intensive as reflected from its working capital components. Net Current Assets (NCA) as a percentage of Fixed Assets and NCA, was almost 85% in 00-01. Besides, TCIL also has to maintain high cash and bank balances because its operations are spread across various locations and separate bank accounts are maintained for each location. TCIL also has investments of Rs 675 million, which includes investments to the tune of Rs 626 million in various joint venture projects. TCIL has a positive net worth of Rs 3324 million. TCIL's business is partly funded by external borrowings, the borrowings being of the order of Rs 828 million.

As on 31st March, 2001, TCIL had the following contingent liabilities:

- Rs 793 million was on account of disputed liabilities.
- Rs 868 million was on account of guarantees issued by banks
- Rs 533 million was on account of LCs outstanding
- Rs 224 million was on account of corporate guarantees/bank guarantees on behalf of JVs

Consistent RoE but declining ROCE, as shown in the table below, are mainly due to negligible returns from JVs:

Table 19

	97-98	98-99	99-00	00-01
ROCE incl investments, %	22.4%	22.2%	17.3%	15.2%
ROCE excl investments, %	47.4%	28.3%	20.9%	21.5%
RoE, %	18.9%	19.9%	17.4%	18.7%

Source: ICRA

Return on Capital Employed (OPBIT/Average Capital Employed excluding Investments) declined in the last two years due to decline in operating margins. However, the returns generated were above 20%. Return on Capital Employed (PBIT/Average Capital Employed including Investments) was much lower than ROCE excluding Investments because Investments have not generated sufficient returns. Return on equity has been steady at 19-20% level.

As the following table shows, TCIL has low debt-equity and very high interest coverage:

Table 20

	97-98	98-99	99-00	00-01
Debt-Equity, times	0.1	0.1	0.2	0.2
Interest Coverage, times	10.3	10.6	12.7	9.6

Source: ICRA

TCIL has stretched working capital as indicated from increase in debtors, inventory and creditors in 00-01 compared to 99-00:

Table 21

	97-98	98-99	99-00	00-01
Current ratio, times	1.4	1.4	1.6	1.6
Receivable, days	72	90	91	109
Inventory, days of CoGS	181	148	148	187
Payables, days of CoGS	136	128	108	131

Source: ICRA

TCIL's cash after operations became negative for the first time in last four years primarily because of its outstanding from Ghana project. Currently, the outstanding from Ghana project is estimated at around Rs 1639 million. As the following Table shows, Financial Performance of TCIL in 2001-02 has deteriorated:

Table 22

Rs (Million)	2000-01	2001-02 (estimates)
Turnover	7762	7500
Gross Margin	730	470
PBT	632	350

Source: ICRA

The operational and financial performance of TCIL has deteriorated in 2001-02 compared to 2000-01 both in terms of turnover and profitability. While turnover has declined by almost 2%, operating margins have declined to 6.3% compared to 9.4% in 00-01. PBT has declined by almost 45%. The primary reason for decline in turnover is the GSM installation project of Cambodia (US \$ 60 million) which failed to take off in the year. The turnover contribution of the project for the year was expected to be around Rs 600 million. The reasons for lower profitability, inter alia, are as follows:

- Stiff competition in the market from MNCs has compelled TCIL to quote at lower rates;
- In cost plus contracts with BSNL, BSNL has also started negotiating tenders for overheads and margins, which has resulted in TCIL quoting bare minimum rates to get job orders;
- Project mix has changed considerably and to maintain the volume of operations, more and more contracts are being taken at very low margins

Increasing competition and changing technological needs, have led to falling operating margins for TCIL's core business areas are falling. In order to meet the new challenges, TCIL has engaged a consultant to draw a business strategy for the company, which has been discussed earlier.

A snapshot of TCIL's business targets is given below:

Table 23

(Rs Million)

Business/Technology Area	2002-03	2003-04	2004-05	2005-06	2006-07
Telecom network projects	7000	6900	6650	6300	6000
Access	700	1150	1250	1500	1800
Enterprise WAN's	250	700	1300	1850	2650
IT	200	450	900	1450	2300
Value Added Service	150	300	500	800	1100
Training	100	120	150	180	200
Other	100	200	450	700	1000
Total	8500	9820	11200	12780	15050

Source : ICRA

As is evident from the above table, total revenues are projected to increase @ CAGR of 16%. According to the plan, revenues from network projects, TCIL's core business area, are likely to decrease, revenues from other areas are likely to increase significantly.

It is felt that it would be difficult for TCIL to achieve such high business targets. Since TCIL has a strong presence in the areas of turnkey telecom projects and

access network, TCIL may closely achieve its business targets in these areas. In other areas like Enterprise WANs, IT, Training, and Value-added services, the competition is very high and TCIL does not have a strong past track record. Given the new business focus of TCIL in these areas and also because these areas are high growth areas, TCIL may achieve moderate growth in the initial areas as its base is very low. However, overall growth of TCIL's business is unlikely to be as high as 16%. According to an estimate by ICRA, an overall growth of 10% may be assumed for the next five years.

Employee Profile

The total employee strength of TCIL as on 31st March 2002, was 1,580, of which 666 were its own employees, 302 employees were on deputation from DoT, and the rest were casual workers. The average age of the core employees of TCIL was around 30-35 years. Most of the core staff of TCIL has been absorbed from DoT.

The employee turnover for TCIL is quite low with only 14 people leaving the organisation on an average every year for the last five years. The addition to the core staff is higher than the employee turnover with around 40 people added every year to the core staff including the personnel on deputation retained by the company.

Its manpower is varied and reportedly adaptable to high-tech telecom and IT lines of business and represents the single most critical factor contributing to the present strength and future potential of TCIL. Bulk of TCIL's strength of 666 employees is technical and specialised and trained in various aspects of telecom operations with focus on project execution.

SWOT ANALYSIS

Strengths

- **Long-term standing:** TCIL has an established record of being a turnkey telecom solution provider with core competency in Telecom Network project execution, both in India and overseas, for the past 24 years. The goodwill and relations built in 24 years of operations with various countries and local players in those countries are substantial.

- **Wide geographical reach and diversified client profile:** TCIL has handled projects in more than 44 countries in the continents of Africa, Asia and Europe. TCIL has a diversified client profile including PTTs, private operators, and MNC equipment providers.
- **Niche segment experience:** TCIL has laid networks in India for DoT and in Africa & Asia under difficult conditions and most difficult of terrains.
- **Strategic alliances and relationships:** TCIL has strategic alliances with various players in the industry. It has also established links with the large telecom players such as MNC equipment manufacturers by working with these MNCs on sub-contract basis. TCIL has acquired experience in basic services and optical fibre cable production through joint ventures.
- **Low cost, skilled and fairly young manpower:** The core team of TCIL is fairly young and experienced in the field of telecommunication. TCIL has the distinct advantage of availing cheap and skilled manpower from DoT.
- **Well-spread out marketing network:** TCIL is a fairly well-spread out office network with its corporate office at New Delhi, 6 regional branch offices and 25 foreign offices.
- **Strong financial position:** TCIL has a strong financial position with a net worth of Rs 3324 million as on 31st March 2001, low gearing at 0.2, high cash and bank balances. This gives advantage to TCIL to face competition and also venture into new areas.

Weaknesses

- **Employees on deputation:** The core staff of TCIL is less than half of the total number of 1500 employees. The employees on deputation from DoT return to DoT after serving their tenure. The company in this process loses a large knowledge pool, periodically.
- **Dependence on government business:** A large chunk of TCIL's domestic business comes from DoT and other PSEs such as GAIL, various government departments (IT work), defence, etc. Given the ongoing scenario of disinvestment and privatisation, TCIL stands to lose business in future due to lower investments from government and increased competition. Besides, TCIL still has a long way to go before forming a substantial private clientele.

Opportunities

- The fast changing face of telecom technology combined with TCIL's long-term standing and market relationships generates significant opportunities.
- With telecom de-regulation and privatisation happening in most of the third world countries, new set of customers, regions and countries are opening up for TCIL to explore.

Threats

- The current synchronized slowdown in most of the large economies will have its repercussion on the telecom industry and on TCIL's business as well.
- Alternate sources of revenue need to be explored since the traditional sources with multilateral funding may progressively dry up.
- Competition from large MNC equipment manufacturers is emerging given their technology competence and strong financial position.
- With spread of wireless technologies, TCIL's experience and expertise need to be built-up since its experience has largely been confined to wireline cabling, especially copper cabling.

TCIL's future market position is critically dependent on its ability to meet technological requirements, anticipating market needs, accessing and training manpower, success of strategic alliances and joint ventures, and its marketing abilities.

DISINVESTMENT CONSIDERATIONS

Economic Rationale

TCIL operates in the telecom sector, more specifically in the network planning/installation and integration space. This is a highly competitive sector, both world-wide and domestic. The domestic market constitutes various players many of them being strong MNCs. The Indian market has become highly competitive due to intense competition, which is a function of number of players and the size of the market. It is believed that Indian telecom sector (barring a few exceptions)

has grown below expectations and this has directly impacted the intensity of competition. The global downturn in telecom sector has further made matters worse as the global telecom equipment majors look for ways and means to offload their high inventories in developing countries at low prices.

The large presence of the private sector and the highly competitive nature of the business are a pointer that government presence in this sector is not warranted.

The critical key success factors of this business are:

- Timely project execution that is reflected in the track record
- Knowledge & adoption of emerging technologies
- Fast acquisition and dispersion of skills, both technical and managerial, amongst the manpower.

The above key success factors call for operational and decision making flexibility of a high order. It is expected that these factors would improve with private participation with ownership and management control.

Since TCIL is currently a profitable company with a high networth/reserves position, it would be attractive for any potential buyer.

Financial Restructuring

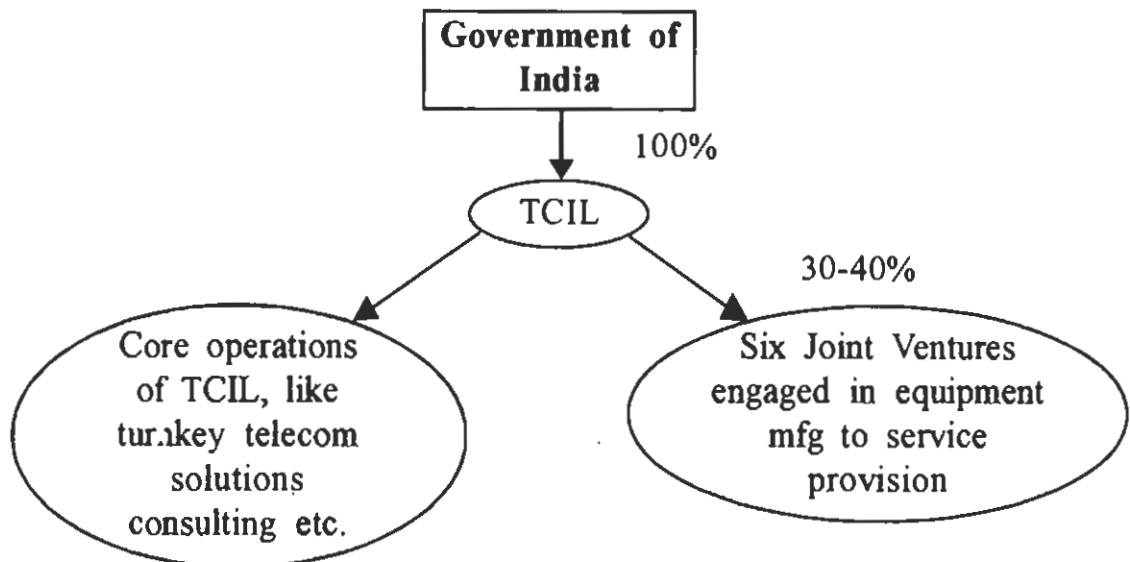
TCIL had entered into a USD 50 million contract with Ghana Telecom Corporation (GTC). GTC's management control was with Malaysian Telecom four years back prior to which GTC was a government owned organisation. The telecom contract was given to TCIL along with other Malaysian parties by GTC. TCIL had already completed about 90% of the project, whereas it received only part payment compelling TCIL to stop further execution of the contract. The total outstanding as on 31st March 2001 was Rs. 1639.30 million, which is included in work-in-progress as per accounting classification followed by TCIL. In about a year, the management rights of GTC will come back to Ghana government. TCIL claims that Indian Government has taken up the matter with Ghana government and Ghana government has assured of making payment to TCIL.

As the amount involved is huge and the timing of receiving payment appears still uncertain, disinvestment of TCIL may be adversely affected. As per the latest developments, GTC has agreed to pay USD 1 million every month. Thus

the entire outstanding is likely to be received in next two to three years. If this does not happen in time, prior to disinvestment, GoI may have to provide guarantee to the prospective buyers of TCIL

Corporate Restructuring

The operating structure of TCIL as on 31st March 2001 is as follows:



Source: ICRA

TCIL holds 30-40% stake in these JVs. It also has management rights in some of the JVs. Each of these JVs is engaged in provision of different services in the telecommunication industry. Though the rationale for investing in JVs could have been diversification of risk and hedge against possible stagnation in core business, some of the JV businesses can have the effect of sub-optimising TCIL valuation. More so, potential investors may not find strategic synergies in all the JV businesses. In the following table, the importance of each JV to the entity of TCIL is evaluated:

Table 24

JV	Activity	Importance to TCIL
TTL	Manufactures OFC/JFTC	Though OFC is a major input for TCIL's outside plant projects, cable manufacturing is not part of its core business. Also, a prospective strategic partner may not like exposure to equipment manufacturing since it would drastically alter the risk profile of TCIL. Even today, TCIL weighs the various other supply options available to it given the wide choice available.

...contd.

JV	Activity	Importance to TCIL
Hexacom	Provides cellular service in Rajasthan	Diversifies business profile of TCIL and exposes it to the high risk high growth cellular sector. Wireless telephony requires entirely different set of success factors from that required in TCIL's core line of business. TCIL's rationale for investing in these businesses is to find additional revenue streams, and based on similar assumptions, TCIL has entered into JVs for provision of telecom services in Nepal and Kenya. However, purely from a portfolio point of view these JVs may not add value to TCIL. It might be difficult to disinvest TCIL with its existing stake in Hexacom as the prospective strategic partner may not be interested in providing telecom services.
TBL	Develops telecom software	Telecom software is a growth area having definite synergies with TCIL's existing and future business plans. Given the trends in telecom products & services, the share of embedded & operational software would grow manifold in value terms. Presence in telecom software segment would be of strategic importance for TCIL or any other player operating in telecom turnkey segment as it enables product differentiation and ability to charge a premium. However, Bellsouth may not be very keen in continuing their operations in India.
ICSIL	Small turnkey jobs	Currently, ICSIL lacks clear business plan of its own and depends on TCIL for its revenues and odd jobs. This being the case, it could be closed down with TCIL absorbing the charges. ICSIL employs 6 persons who could perhaps be absorbed by TCIL.
TSCL	Bidding for projects in Saudi Arabia	Important to existing business of TCIL and therefore should continue to be part of it. Ensures presence & reach in the low teledensity, high growth potential region of middle east.
TNCL	Bidding for projects in Nigeria	Though the venture has not begun commercial operations as yet, it has the potential to capture turnkey work in the African region. TCIL has successful track record of project completion in the African region and this JV could build upon the goodwill to further develop business.

Source: ICRA

Prospective strategic partners in TCIL may not be interested in all JVs of TCIL. The following options may, therefore, be considered for restructuring before disinvestment:

Table 25

		Remarks
Option 1	<ul style="list-style-type: none"> • Close ICSIL • Continue with the existing operating structure 	However, strategic partners may not be interested in OFC/JFTC business and cellular business – this may delay the process of disinvesting TCIL
Option 2	<ul style="list-style-type: none"> • Close ICSIL • Continue TCIL with TSCL, TNCL and TBL • Float a separate company with stakes in TTL and Hexacom 	This option is likely to maximise value of TCIL though success of TBL is subject to technical collaboration with an experienced partner. The equity capital of the newly formed company will be held entirely by the GoI and will be carved out from the existing net worth of TCIL. The newly formed company may be liquidated later after stakes in TTL and Hexacom are disinvested.
Option 3	<ul style="list-style-type: none"> • Close ICSIL • Continue TCIL with TSCL and TNCL • Float a separate company with stakes in TBL, TTL and Hexacom 	The equity capital of the newly formed company will be held entirely by the GoI and will be carved out from the existing net worth of TCIL. The newly formed company may be liquidated later after stakes in TBL, TTL and Hexacom are disinvested

Source: ICRA

While discussing business restructuring, three options have been suggested. Options 1 to 3 lie on a scale of increasing complexity/difficulty of restructuring, suggesting that Option 1 is the easiest to implement. At the same time there is an increasing trade off with the value that can be realised from TCIL for the GoI.

RECOMMENDATIONS

The additional value that can be unlocked (as on 31st March 2002) by taking suitable restructuring measures as suggested in the previous section (Corporate Restructuring), could be of the order of Rs.330 million, which translates to an additional Rs.22.87 per TCIL share, as per a preliminary estimate done by ICRA. However, the actual value that could be realised would depend on the prevailing business and economic conditions at the time of restructuring in consultation with prospective strategic partners. ICSIL has to be closed down for all alternatives as suggested. Possible buyers for the JVs could be telecom cable manufacturers (for TTL) and for cellular service providers (for Hexacom) respectively. TBL can be continued, as telecom software applications would be important for TCIL's future business.

It is also felt that sale of minority share through the capital market route may neither yield adequate revenue nor help the company to make it more efficient and internationally competitive.

Based on the facts and analyses above, the Commission recommends that a minimum of 51% of TCIL's equity, held by Government of India, be disinvested in favour of a strategic partner, after withdrawal of surplus cash reserves. Government should retain at least 26% equity for a period of 3-5 years. The transaction documents should make adequate provision to ensure that, at least for 3-5 years, TCIL may take on deputation engineers and experts from the Department of Telecommunications/BSNL. Continuation of technical workforce of TCIL on deputation from the Department of Telecommunications/BSNL, post privatisation, may be needed for a few years till the company builds up its own hightech human resources and becomes an international major on its own.

Continuation of DOT's association with TCIL for sourcing expertise as well as for business development, for a few years, would ensure continuity and provide comfort to the clients and prospective strategic partners. Necessary arrangements should be made accordingly and appropriate clauses in this regard may be included in the transaction documents of strategic sale.

The restructuring package, prior to disinvestment, has to be drawn up in consultation with prospective buyers.

Since TCIL is a well-run company rendering useful service to the country and abroad, and has substantial assets and goodwill, special care requires to be taken to select the strategic partner, through the competitive bidding route, so that the selected party has proven capability to be able to induct superior technology and infuse the needed expertise and funds to make TCIL a global major. Thus, proper pre-qualification of potential bidders is crucial in this case to ensure that the selected partner can add real value to the company.

To ensure retention of employees on deputation from TCIL as well as of other technical workforce, suitable schemes for incentivisation such as Employee Stock Option Plan (ESOP)/Employee Stock Purchase Scheme should be explored.

*** * ***

