

A Survey on Technology-Intensive Exports from India*

GLOBAL high technology exports increased to US\$1,043 billion in 2003 from US\$207 billion in 1988. In comparison, India's high technology exports stood at US\$2,292 million in 2003 compared to US\$1,245 million in 2000. Technology exports of India are estimated at 5 per cent of manufactured exports compared to 27 per cent in China and 58 per cent in Malaysia.

The technology-intensive exports (defined as exports of capital goods, computer software services, consultancy and management & technical services, turnkey projects, construction contracts and inflows from joint ventures and wholly-owned subsidiaries abroad in the *Compendium on Technology Exports*) had a share of around 21 per cent in overall exports of US\$80.54 billion in 2004-05 (Table 1). Technology-intensive exports had a share of 15 per cent in overall exports of US\$44.56 billion in 2000-01. The aggregate value of national technology-intensive exports were Rs 1,057,238 million in 2004-05 and Rs 821,509 million in 2003-04. However, subtracting computer software exports, being non-manufactured exports and since this survey deals with manufactured exports, aggregate non-computer software technology-intensive exports amounts to Rs 274,938 million in 2004-05 and Rs 239,109 million in 2003-04.

A survey was carried out in which technology-intensive exports data of 261 organizations were compiled as Rs 199,630.5 million in 2004-05 and Rs 178,707.8 million in 2003-04. Thus, the survey can be

* Article based on *Compendium on Technology Exports* (Volume VII) brought out by IIFT, New Delhi in association with DSIR, Ministry of Science and Technology. This is the second article on the subject, the first one featured in the April-June 2004 issue (Vol. VI; No.4) of this publication. The first article was based on data for 2000-01 and 2001-02 and in the present article, data for 2002-03, 2003-04 and 2004-05 have been added.

said to have captured over 70 per cent of the value of non-computer software national technology-intensive exports.

The gross technology-intensive exports of companies surveyed have been broken up into export of consultancy services, turnkey projects, capital goods, know-how and technology-intensive products in Tables 2 and 3. While Table 2 gives data for 248 companies for 2000-01 and 2001-02, Table 3 gives data for 261 companies for 2002-03, 2003-04 and 2004-05.

TABLE 1
INDIA'S EXPORTS OF TECHNOLOGY-INTENSIVE
PRODUCTS/SERVICES

Sector	(Rs million)		
	2002-03	2003-04	2004-05
1. Capital goods	102,883	158,314	208,433
2. Computer software service	465,000	582,400	782,300
3. EXIM Bank export contracts			
(a) Turnkey projects	31,220	40,320	23,400
(b) Construction	16,960	14,580	14,900
(c) Consultancy services	2,660	1,430	2,630
4. Management & technical services	9,250	9,600	11,000
5. JVs & WOS (Dividends, Royalty, Non-Equity Exports-Domestic & Foreign)	3,590	14,865	14,575
<i>Total (Technology-Intensive Exports)</i>	<i>631,563</i>	<i>821,509</i>	<i>1,057,238</i>
6. CSIR's earnings (Contract Research and Consultancy)	2,700	2,552	2,587
7. Merchandise exports (DGCI&S)	2,551,370 (US\$52,719)	2,933,668 (US\$63,843)	3,560,689 (US\$80,540)
8. Misc. services receipts of gross invisible receipts (RBI)	906,160	823,800	1,498,910
9. Technology-intensive exports as a percentage of merchandise exports plus misc. receipts.	18.27	21.86	20.89

Source: Annual Reports of the Ministry of Commerce & Industry, Exim Bank of India, Engineering EPC and *Economic Survey of India*.

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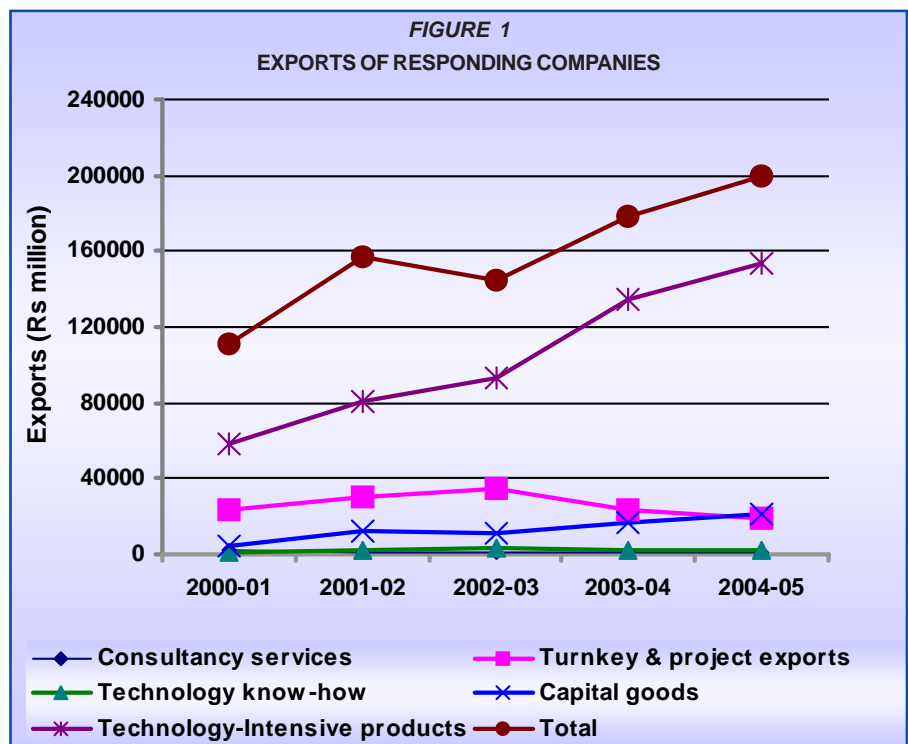
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It is observed that the number of turnkey project exporters and technical know-how exporters have dropped to 26 in the survey for the period 2002-03, 2003-04 and 2004-05 compared to 51 in the survey for 2000-01 and 2001-02.

Figure 1 plots the trends in gross technology-intensive exports and its components for a five-year period from 2000-01 to 2004-05. It is observed that except for exports of technology-intensive products, exports of other components, viz. know-how, turnkey projects, consultancy services and capital goods have either remained stagnant or have fallen.

This implies that the companies are yet to see value in real technology exports. The Government in this year's Foreign Trade Policy announced 10 per cent duty credit for promoting exports of high technology products. The Science & Technology Policy 2003 talks of deriving value from technology led exports and says that export of technologies will be facilitated through new policy initiatives, incentives and legislation.

It is also proposed to achieve a double digit share of technology exports in manufactured exports. Since technology export is crucial for sustainable export growth rate, there is an urgent need to strengthen the existing mechanism and provide innovative support measures and incentives so as to promote technology exports, i.e. export of know-how, turnkey projects, capital goods, etc.



Note: Graphical line representation of "Consultancy Services" and "Technology Know-how" coinciding.

Classification of India's merchandise exports from 2001-02 to 2004-05 is shown in Table 4, which include, *inter alia*, resource based, low, medium and high technology exports.

TABLE 2
EXPORTS OF RESPONDING COMPANIES (2000-01 TO 2001-02)

Sector	No. of Cos.	Manpower Employed (Nos.)		R&D Expenditure (Rs million)		Annual Turnover (Rs million)		Exports (Rs million)	
		Total	S&T	2000-01	2001-02	2000-01	2001-02	2000-01	2001-02
		Consultancy Services	11	4,417	1,785	74	82	5,616	6,125
Turnkey & Project Exports	25	44,234	3,545	309	301	1,44,493	157,198	23,018	30,508
Computer Software and Hardware Services	4	18,300	10,258	18	13	3,650	30,537	21,968	29,471
Technology Know-how	26	27,578	9,561	520	613	30,008	28,990	1,491	2,488
Capital Goods	35	96,119	16,238	1,973	1,989	1,13,010	127,027	4,363	11,869
Technology-Intensive Products	147	157,541	10,056	3,469	6,149	334	364,372	58,558	80,985
Total	248	348,189	51,443	6,363	9,148	601,227	714,159	111,461	156,849

Source: DSIR-IIFT, *Compendium on Technology Exports 2004*.

TABLE 3
EXPORTS OF RESPONDING COMPANIES (2002-03 TO 2004-05)

Sector	No. of Cos.	Manpower Employed (Nos.)	Annual Turnover (Rs million)			R&D Expenditure (Rs million)			Exports (Rs million)		
			2002-03	2003-04	2004-05	2002-03*	2003-04	2004-05	2002-03	2003-04	2004-05
			Consultancy Services	12	8126	13,389.87	17,829.95	12,015.03	52.48	62.53	85.15
Turnkey & Project Exports	11	34694	163,453.19	1,84,627.00	1,23,679.40	226.90	296.58	370.48	35,284.97	23,445.03	19,552.54
Computer Software & Hardware Services	3	274	319.40	4,172.00	9,356.00	—	0.47	0.21	932.00	574.50	859.00
Technology Know-how	15	24265	13,663.05	13,728.65	19,624.35	470.70	56.16	44.88	3,559.91	2,712.66	2,759.34
Capital Goods	42	39329	142,649.15	99,956.54	1,11,777.00	85.03	1,181.51	2,532.51	10,823.30	16,432.55	20,816.90
Technology Intensive Products	178	204836	404,869.42	4,79,109.60	5,36,231.20	4,312.77	57,739.68	85,145.07	92,968.51	1,34,220.10	154,067.20
Total	261	311524	738,344.08	799,423.74	812,682.98	5,147.88	59,336.93	88,178.30	144,532.80	178,707.80	199,630.50

*R&D Exp. (2002-03) is low because data not provided by many companies.

Source: DSIR-IIFT, *Compendium on Technology Exports 2007*.

TABLE 4
INDIA'S MERCHANDISE EXPORTS BASED ON TECHNOLOGY INTENSITY (2000-01 TO 2004-05)

Sector	(Rs million)					
	2000-01	2001-02	2002-03	2003-04	2004-05	%change in 2004-05 over 2003-04
Resource Based	324,480 (15.94)	337,430 (16.14)	416,740 (16.33)	1,004,004 (34.22)	548,050 (15.39)	-45.41
Low Technology	671,530 (32.99)	567,370 (27.14)	740,931 (29.04)	837,312 (28.54)	893,237 (25.08)	06.68
Medium Technology	731,598 (35.94)	759,334 (36.33)	1,014,640 (39.77)	1,396,270 (47.59)	1,942,693 (54.56)	39.13
High Technology	234,310 (11.51)	250,420 (11.98)	304,320 (11.93)	368,079 (12.55)	404,658 (11.36)	9.94
Total (including others)	2,035,710 (100)	2,090,180 (100)	2,551,370 (100)	2,933,668 (100)	3,560,689 (100)	21.37

Note: Figures within brackets indicate percentage share of the total

Source: Compiled from the Ministry of Commerce & Industry, *Annual Reports* (various issues).

KALEIDOSCOPE OF INDIA'S OVERSEAS BUSINESS

NGRI Signs MoU with GEMRC IPE

The National Geophysical Research Institute (NGRI), Hyderabad, has signed a Memorandum of Understanding (MoU) with GEMRC IPE, Russia, on 17 November 2006 after detailed discussions with Magnetotellurics group headed by Dr. T. Harinarayana, on various research projects. The MoU was signed by Dr. V.P. Dimri, Director, NGRI and Prof. Vjasheslav V. Spichak, Director, GEMRC. With the signing of the MoU, GEMRC and NGRI have mutually agreed to collaborate with each other, specifically in the field of "Electromagnetics". Both the parties have agreed for future scientific cooperation in the following areas:

- Application of artificial neural network technology for geophysical data interpretation
- Construction of 3D geoelectric models from Magnetotelluric data measured in India
- Promotion of joint project on EM tsunami alarm system (organization of bilateral colloquium in Moscow in 2007)

Two or three experienced NGRI research students in the field of magnetotellurics will carry out their Ph.Ds in GEMRC IPE during 2007-2009 under joint supervision. The financial support will be provided by NGRI through DST (India) and GEMRC IPE through RAS (Russia) under ILTP programme. The MoU would remain valid for two years from 17 November 2006 and is renewable on mutual consent.

(CSIR News, March 2007)

Multipurpose Herbal Extraction Pilot Plant for Malaysia

Tropical Botanic SDN BHD, Malaysia, has retained IIIM as consultant to undertake design, drawing, installation, commissioning, validation and testing of multipurpose herbal extraction pilot plant in Malaysia. IIIM would also help the party in short listing the appropriate fabricator in India and also to demonstrate the working of the plant for processing herbals/botanicals both in India and Malaysia. Based on the performance of the pilot plant, the company intends to retain IIIM as their consultant for the designing of the production plant as well.

(CSIR News, March 2007)

IFFCO Signs Pact for \$350 mn Plant in Jordan

Indian Farmers Fertilizer Cooperative Ltd. (IFFCO) has signed an MoU with Jordan Phosphates Mines Company (JPMC) for setting up a latest phosphoric acid plant in southern Jordan.

The proposed plant is part of the company's backward integration plan to meet its essential feedstock requirement of phosphoric acid, according to an official release.

In this new venture, IFFCO and its associates will have a 52 per cent stake, while JPMC and its associates will hold 48 per cent. The plant and associated facilities would involve an investment of around \$350 million and would have an installed capacity of 1,500 tonnes of phosphoric acid per day. Utilities and other related facilities would be located adjacent to Eshydia Mine in Jordan. Acid produced by the joint venture will be sold internationally or used by IFFCO at its plants in India.

India imports around 2.6 million tonnes of phosphoric acid from other countries whereas its indigenous production is only about 1.2 million tonnes.

(The Hindu Business Line, 4 February 2007)

BHEL Wins Bangladesh Order

BHEL has outbid Chinese power equipment major, Harbin Power Engineering, to secure its second turnkey power project in Bangladesh. The order, worth Rs 505 crore, would be funded by Asian Development Bank (ADB) and would involve setting up two 100-120-MW gas turbine power plants at Sidhirganj, a BHEL release said.

The company was awarded the contract by Electricity Generation Company of Bangladesh (EGCB), a subsidiary of Bangladesh Power Development Board (BPDB).

BHEL had earlier completed another turnkey execution of a 100-MW gas turbine-based power plant for BPDB at Baghbari in Bangladesh. The company is executing another ADB-funded turnkey contract for Power Grid Company of Bangladesh for a 220-KV substation at Baghbari and extension of a similar substation at Ishurdi.

(The Hindu Business Line, 4 February 2007)

L&T Bags \$250-mn Order from Qatar Oil Firm

L&T has bagged a \$250 million contract from Maersk Oil Qatar for development of two new offshore platforms. "This is one of L&T's largest overseas orders that Maersk Oil Qatar is developing under a production-sharing agreement with Qatar Petroleum," the company said in a statement. "To be executed in 28 months, the Block 5 Package 14 project consists mainly of two 2,300-tonne topsides with facilities for oil production and export," it said. The breakthrough order from Maersk will increase L&T's share of the burgeoning Middle East hydrocarbon projects, the company stated. The order for Maersk will be executed by L&T in alliance with its project partners Acer Kvaerner and Seaway Heavy Lifting of the Netherlands.

(The Economic Times, 20 February 2007)

Kirloskar Bags \$10-mn Project in Jamaica

Leading pumpmaker Kirloskar Brothers Ltd. has bagged a \$10 million (Rs 44 crore) water supply project from Jamaica, while it is exploring similar opportunities in Latin America. "The water supply project (for Jamaica) targeted for domestic consumption is a credit line from our government," J.R. Sapre, Director, Kirloskar Brothers Ltd. said.

He said the project is likely to begin by September 2007 and would be completed by March. "We are in talks with Colombia, Venezuela and Guyana for irrigation and water supply projects," Shri Sapre said.

The company which has set an ambitious target of entering the list of top five global pump manufacturers of the world by 2015 is looking at expanding its overseas network.

(Mint, 19 February 2007)

Wockhardt Buys Negma Labs for \$265 mn

Close on the heels of acquiring UK-based Pinewood Laboratories, the Mumbai-based Wockhardt Ltd. has announced their fifth buyout in Europe by acquiring French pharmaceutical company Negma Laboratories in all-cash deal worth \$265 million (around Rs 1,090 crore). The transaction is valued at 1.8 times the sales and 9.7 times the EBITDA of Negma Laboratories. France is the third

largest pharmaceuticals market in Europe after Germany and the UK.

With the buyout, Wockhardt says it will be the largest Indian pharmaceuticals company in Europe with more than 1,500 employees. Negma Labs, the fourth largest independent pharmaceuticals group in France with sales of \$150 million, owns a portfolio of 172 patents and has a few molecules under pre-clinical stages of development. The company has various drugs belonging to the osteoarthritis, rheumatology and hypertension segments.

Earlier, Wockhardt had bought Wallis and CP Pharmaceuticals in the UK, Esparma in Germany and Pinewood Labs in Ireland.

Says Habil Khorakiwala, Chairman, Wockhardt, "The acquisition will allow us to extend our patented portfolio to other European markets. Further, it will provide us the right entry vehicle to the French generics market, valued at \$2 billion. With this acquisition, we are on the fast track to achieve our corporate strategy of \$1 billion in turnover by 2009."

An analyst from IDBI Capital said that Wockhardt's entry into the French market is well-timed. Says he, "The growth rate in the major European pharma markets like the UK and Germany is now stagnant due to high competition and state intervention. Therefore, it's better to focus on other emerging markets like France, Spain and Italy." The revenues from the conventional markets are eroding. An early entry into the other emerging markets will reduce competition as well as bring in better prospects, he added. With Negma acquisition, Wockhardt's European business will account for more than 60 per cent of the company's total revenues. Wockhardt, which at present has a portfolio of 130 products in the European market, will launch 24 more drugs in Europe next year. With this buy, the company will have four manufacturing facilities in Europe.

(The Financial Express, 4 May 2007)

Jubilant Bags \$60-m Orders

Jubilant Organosys Ltd, an integrated pharmaceutical industry player and the country's largest custom research and manufacturing services company, recently added annual contracts worth \$60 million to its order book. The contracts have been finalized with some of the leading global life sciences companies jubilant has a strong intellectual base and proven capability in developing cost-efficient solutions, particularly in life sciences segment. HTC

(Hindustan Times, 21 March, 2007)

India's GDP Crosses US\$1 trillion

India has joined the elite club of 12 countries with a trillion dollar economy, thanks to the continuing rally in rupee against the US dollar.

The country's GDP crossed the trillion-dollar mark for the first time in history when rupee appreciated to below 41-level against the US greenback, according to the Swiss investment bank Credit Suisse report. Countries like the US, Japan, Germany, China, UK, France, Italy, Spain, Canada, Brazil and Russia have all breached trillion-dollar GDP level in the past.

The bank put the country's GDP at around Rs 4,100,000 crore, which translates to slightly more than one trillion dollar at the current currency level of Rs 40.76 per dollar. Besides, the country's stock market capitalization has risen to \$944 billion, which is also closing fast on the trillion dollar level, it added.

India becoming a trillion dollar economy also augurs well for the country's stock market, as Credit Suisse report said that stock markets in eight out of ten countries had risen in the one year after their economies first crossed this mark.

(The Financial Express, 27 April 2007)

R&D Spend of Pharma Cos Rises to 8.8% of Net Sales in 2005-06

The pharmaceutical companies have stepped up their R&D spending to meet the pressure of the patent regime. Take the case of Ranbaxy Laboratories, the leader, which has spent Rs 639.33 crore on R&D in 2005-06, the highest by any Indian company. This was 18.4 per cent of its net sales. In five years, between 2001-02 and 2005-06, the share of R&D spending in net sales has gone up by a huge 15 percentage points from 3.4 per cent to 18.4 per cent. In actual terms, the expenditure on R&D has increased by an annual compound rate of 70 per cent against 11.3 per cent rise in net sales during the same period. Ranbaxy Laboratories was, however, not an exception. The pharmaceutical companies in general have increased their R&D spending rapidly in recent years. The expenditure on research by Dr Reddy's Laboratories has increased by an annual compound rate

of 25.7 per cent during this period raising its share in net sales from 6.3 per cent to 11.4 per cent. Sun Pharmaceuticals and Cipla have witnessed 36.8 per cent and 35 per cent annual rise in R&D spending, respectively, during the same period.

In fact, the aggregate spending on R&D of 27 pharmaceutical companies in the list has increased by an annual compound rate of 40.3 per cent between 2001-02 and 2005-06. R&D's share in net sales has gone up from 4 to 8.8 per cent during the period.

May be the pressure of the new patent rule has compelled pharmaceutical companies to spend more on research, but what is disturbing is that other industries which are not affected immediately by these developments continue to ignore R&D activities. An ET survey of 100 large companies finds that their aggregate spending on R&D accounted for a paltry 0.73 per cent of their total net sales in 2005-06. Worse, the figure would look even more pathetic at 0.42 per cent if pharmaceutical companies are excluded from the list.

In fact, as in the past, domestic industries have continued to depend on foreign technology and foreign machinery. Reliance Industries has spent a staggering Rs 2,681 crore on imports of capital goods in 2005-06, ONGC Rs 2,537 crore and NTPC Rs 638 crore. Clearly, corporate majors have disregarded the fallout of the changes in intellectual property rights that now necessitated technological self reliance as borrowing technology from developed countries may no longer be economic. Already, the developed countries have restricted the flow of advanced technologies to developing countries and unless technological upgrade is undertaken at home, the domestic industry is sure to be edged out in the competition.

The captains of domestic industries, however, have remained indifferent to these developments. How else can one explain the pathetic contribution of Indian industry in R&D? Despite rapid rise in income and profit margins, India Inc is spending less than 1 per cent of net sales in R&D. And at individual company level, it appears as if to honour the Government guideline they are maintaining their R&D division. One rarely comes across the news of any significant technological innovation at the R&D division of a local company.

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CORPORATE INDIA SPENDS LESS THAN 1% OF NET SALES IN R&D

Company	R&D expenditure (Rs cr)					% share of R&D expenditure in net sales					% CAGR 05-06/ 01-02	
	2005-06	2004-05	2003-04	2002-03	2001-02	2005-06	2004-05	2003-04	2002-03	2001-02	R&D exp.	Net sales
	Ranbaxy Laboratories	639.33	399.66	276.13	192.17	77.12	18.37	9.58	6.63	5.71	3.40	70.0
Tata Motors	476.12	393.34	151.88	143.00	92.37	2.36	2.29	1.17	1.60	1.26	50.7	28.8
Dr. Reddy's Laboratories	253.95	297.79	226.05	163.49	101.76	11.35	17.95	12.86	10.11	6.25	25.7	8.3
Sun Pharmaceuticals	161.49	115.98	107.68	65.77	33.67	12.91	12.14	12.60	8.67	5.04	36.8	17.0
Cipla	155.40	98.38	56.50	0.00	46.76	5.22	4.37	2.94	0.00	3.64	35.0	23.4
BHEL	151.70	125.20	104.12	81.74	87.15	1.12	1.29	1.28	1.15	1.25	14.9	18.2
Mahindra & Mahindra	139.64	110.58	86.76	74.40	68.96	1.72	1.68	1.77	2.01	2.13	19.3	25.8
Bharat Electronics	130.15	127.14	130.62	108.70	89.56	3.70	3.97	4.75	4.40	4.72	9.8	16.7
ONGC	125.75	105.27	93.83	92.93	80.28	0.29	0.26	0.35	0.32	0.40	11.9	21.1
Cadila Healthcare	118.70	103.20	88.20	38.23	41.60	9.30	9.51	8.09	4.09	7.88	30.0	24.7
Indian Petrochemicals	110.44	28.30	10.15	9.53	12.81	1.02	0.34	0.08	0.10	0.17	71.4	8.8
Reliance Industries	110.34	61.32	33.59	41.06	90.14	0.14	0.09	0.05	0.07	0.17	5.2	9.9
Lupin	108.02	83.61	45.99	36.00	53.56	6.55	7.22	4.04	3.50	6.18	19.2	17.4
Ashok Leyland	104.95	92.38	48.84	30.60	25.27	1.97	2.18	1.42	1.11	1.08	42.8	23.0
Infosys Technology	102.00	74.00	44.54	14.44	14.86	1.13	1.08	0.94	0.40	0.57	61.9	36.5
Nicholas Piramal	91.15	108.44	55.86	18.50	20.41	6.55	8.80	4.43	1.91	2.53	45.4	14.6
Indian Oil Corpn	89.01	125.73	85.50	90.42	68.63	0.05	0.09	0.07	0.08	0.07	6.7	15.9
Torrent Pharmaceuticals	87.36	67.32	39.67	31.23	22.48	12.60	13.74	8.69	8.33	5.98	40.4	16.5
Wockhardt	81.08	69.28	60.41	46.18	40.24	9.20	8.19	8.28	6.60	6.59	19.1	9.6
Motor Industries	78.80	53.10	42.15	38.41	36.39	2.63	2.24	2.20	2.44	2.50	21.3	19.8
Aurobindo Pharmaceuticals	77.01	54.31	48.98	22.04	12.94	5.52	5.01	3.91	1.98	1.32	56.2	9.3
Bajaj Auto	76.74	66.96	65.02	42.24	37.41	1.02	1.15	1.34	1.00	1.03	19.7	20.0
TVS Motor	67.69	71.74	75.63	58.65	29.88	2.10	2.51	2.71	2.19	1.57	22.7	14
Maruti Udyog	67.10	65.70	39.40	28.30	46.70	0.55	0.59	0.43	0.38	0.65	9.5	13.9
SAIL	62.38	60.58	71.90	54.82	49.85	0.22	0.21	0.32	0.30	0.34	5.8	18.1
Orchid Chem & Pharma	61.36	52.21	39.65	27.84	17.52	7.08	7.71	5.72	5.27	4.27	36.8	20.5
Matrix Laboratories	59.90	27.20	16.30	5.42	1.73	7.75	4.27	3.08	1.37	1.91	142.6	70.9
Force Motors	56.49	27.97	25.77	18.81	13.78	6.14	3.30	2.73	2.70	2.65	42.3	15.4
ITC	54.28	36.82	33.12	19.02	7.52	0.56	0.49	0.52	0.32	0.15	63.9	17.9
Hindustan Lever	49.35	36.34	31.20	24.82	0.00	0.45	0.37	0.31	0.24	0.00	-	1.0
Panacea Biotech	49.02	19.95	14.82	1.05	8.83	9.07	6.01	5.58	0.39	3.21	53.5	18.4
Glenmark Pharmaceuticals	46.69	48.68	37.17	30.59	12.19	8.68	10.47	11.48	11.03	5.49	39.9	24.7
Ind-Swift Laboratories	45.86	28.65	8.31	4.59	3.72	14.61	12.95	5.24	3.28	3.41	87.4	30.2
Biocon.	40.08	24.09	23.33	11.42	7.55	5.77	3.70	4.61	4.45	4.70	51.8	44.2
Jubilant Organosys	39.38	34.61	26.68	8.37	0.00	2.84	3.12	2.45	0.94	0.00	-	14.7
Larsen & Toubro	39.26	32.86	25.18	22.69	20.97	0.27	0.25	0.26	0.28	0.28	17.0	18.0
Ipca Laboratories	37.86	33.59	24.84	12.98	8.26	5.02	4.91	4.04	2.73	2.00	46.3	16.2
Eicher Motors	32.71	44.96	25.34	24.22	27.58	1.99	2.26	1.85	3.86	5.75	4.4	36.1
Ramco Systems	31.10	22.51	33.47	26.78	29.99	26.87	19.58	40.9	33.21	32.07	0.9	5.5
Alembic	26.67	31.12	19.58	19.67	14.41	4.24	6.01	3.54	3.91	2.58	16.6	9.0
Shasun Chem & Drugs	26.36	30.82	10.84	11.09	8.96	7.39	9.54	4.12	4.70	4.28	31.0	14.2
Hero Honda Motors	25.39	16.45	16.76	8.53	7.11	0.29	0.22	0.29	0.17	0.16	37.5	18.2
Tata Steel	24.98	33.72	24.26	15.98	7.52	0.17	0.23	0.21	0.17	0.10	35.0	20.0
Cummins India	22.56	18.90	18.09	14.41	7.91	1.51	1.56	1.92	1.72	1.06	30.0	18.9
Pfizer	22.36	23.51	21.19	18.58	13.21	3.61	4.01	4.17	3.16	3.83	14.1	15.7
Bharat Earth Movers	19.14	16.88	14.98	17.55	18.22	0.93	0.98	0.90	1.11	1.34	1.2	10.9
Bharat Petroleum Corpn	18.88	27.46	13.83	18.98	37.10	0.02	0.05	0.03	0.04	0.10	-15.5	21.4
Picol	18.72	15.44	12.38	10.80	0.84	3.89	3.44	3.35	3.63	0.34	117.3	18.4
Crompton Greaves	17.71	15.53	16.11	14.59	7.75	0.69	0.75	0.94	0.94	0.48	23.0	12.2
Minda Industries	15.64	11.62	9.76	10.24	5.74	5.75	5.87	6.27	8.49	6.03	28.5	30.0
Astra Microwave	15.42	9.36	5.23	3.13	1.53	15.40	14.38	14.95	15.21	9.61	78.2	58.4

Company	R&D expenditure (Rs cr)					% share of R&D expenditure in net sales					% CAGR	
	2005-06	2004-05	2003-04	2002-03	2001-02	2005-06	2004-05	2003-04	2002-03	2001-02	R&D	Net
											exp.	sales
Sasken Communication	15.19	23.33	1.94	1.16	5.68	5.65	10.50	1.17	1.04	5.25	27.9	25.6
Kirloskar Oil Engines	15.15	12.67	8.94	8.82	9.65	1.06	1.08	0.87	1.01	1.28	12.0	17.3
Syngenta India	14.96	16.66	9.06	7.78	6.48	1.93	2.89	2.15	2.23	1.72	23.3	19.7
Asian Paints	14.06	11.37	7.95	7.38	7.40	0.58	0.56	0.43	0.45	0.51	17.4	13.8
Subros	14.05	11.22	6.85	0.53	0.39	2.49	1.90	1.39	0.15	0.11	145	11.3
Sundaram-Clayton	13.49	5.05	7.35	7.14	5.44	2.11	0.92	1.71	2.32	2.14	25.5	25.9
Ucal Fuel Systems	12.69	13.77	3.36	6.80	2.86	4.87	5.07	1.29	3.04	1.62	45.2	10.3
Samtel Color	12.67	14.55	17.02	19.81	15.58	1.63	1.53	2.05	2.54	2.53	-5.0	6.0
Unichem Laboratories	12.32	15.39	8.42	8.66	10.07	2.71	3.99	2.40	2.97	3.75	5.2	14.0
Madras Cements	12.21	8.57	9.72	7.44	9.42	1.22	1.18	1.42	1.21	1.36	6.7	9.5
J B Chemicals & Pharma	12.18	6.61	6.87	5.93	4.37	2.64	1.84	2.25	2.11	1.64	29.2	14.6
Graves Cotton	12.10	4.31	2.19	1.65	2.06	1.86	0.68	0.41	0.45	0.26	55.7	5.8
CMC	11.81	10.21	11.54	7.81	10.34	1.43	1.31	1.54	1.28	1.88	3.4	10.7
MRF	11.53	17.72	21.26	26.20	18.42	0.39	0.69	0.98	1.44	1.08	11.0	14.9
Divi's Laboratories	10.06	9.46	7.59	6.87	5.34	2.60	2.62	2.40	2.68	2.44	17.2	15.3
Glaxosmith Con Healthcare	9.89	12.53	5.01	5.26	6.53	1.01	1.44	0.62	0.68	0.75	10.9	2.8
Hindalco Industries	9.86	9.24	4.09	1.91	1.86	0.09	0.10	0.07	0.04	0.08	51.7	48.7
Siemens	9.76	4.96	2.66	2.38	1.36	0.35	0.27	0.19	0.18	0.12	63.7	23.7
Kansal Nerolac Paints	8.83	7.05	7.12	8.34	4.43	0.83	0.76	0.88	1.20	0.71	18.8	14.4
Tata Elxsi	8.41	7.18	5.56	3.73	0.60	3.52	3.68	3.55	3.41	0.46	93.5	16.5
Apollo Tyres	8.33	7.46	6.56	4.13	6.22	0.32	0.33	0.34	0.26	0.45	7.6	17.4
Surya Pharmaceuticals	8.32	6.13	4.64	0.00	0.00	3.49	3.63	2.87	0.00	0.00	-	19.1
Lakshmi Machine	8.23	8.25	9.32	6.69	6.45	0.62	0.81	1.38	1.52	1.48	6.3	32.3
Bharat Forge	8.17	4.12	2.88	3.61	1.58	0.52	0.34	0.34	0.56	0.37	50.8	39.0
Rallis India	8.14	9.83	10.00	13.32	11.16	1.35	1.76	1.99	1.53	1.11	-7.6	-12.0
United Phosphorous	7.85	4.21	2.92	0.00	0.00	0.60	0.40	0.34	0.00	0.00	-	53.7
ACC	7.79	6.82	7.86	6.44	10.16	0.25	0.18	0.25	0.23	0.36	-6.4	10.8
Himachal Futuristic	7.73	33.93	37.69	0.00	0.00	1.02	8.38	5.02	0.00	0.00	-	-4.0
Thirumalai Chemicals	7.71	1.00	0.99	0.43	0.39	2.17	0.29	0.44	0.18	0.17	110.9	12.4
Punjab Tractors	7.68	6.59	10.17	8.22	7.15	0.80	0.77	1.62	1.44	0.78	1.8	1.0
HCL Technologies	7.47	28.03	1.00	3.20	2.20	0.52	2.50	0.12	0.45	0.31	35.7	19.0
Natco Pharmaceuticals	7.43	5.22	1.66	1.25	0.56	4.65	3.24	1.19	1.16	0.72	90.9	19.8
Gujarat State Fertilizers	7.22	10.71	8.37	8.70	8.45	0.25	0.41	0.40	0.47	0.43	-3.9	9.7
Visualsoft Technologies	7.18	8.56	6.06	2.84	5.36	4.49	4.55	3.94	2.31	5.26	7.6	12.0
Nestle India	7.09	4.89	4.99	3.02	0.00	0.29	0.22	0.24	0.16	0.00	-	7.9
Areva T&D	7.02	5.27	3.85	2.68	3.03	0.81	0.68	0.69	0.58	0.79	23.4	31.7
Wheels India	6.84	5.42	3.21	2.62	2.89	0.81	0.69	0.61	0.71	0.91	24.0	27.8
Bilcare	6.74	4.38	5.38	3.33	0.00	2.81	2.69	5.09	3.89	0.00	-	37.6
Atul	6.71	6.48	6.43	6.29	5.42	0.81	0.93	1.09	1.05	0.98	5.5	10.5
Claris Lifesciences	6.68	3.69	2.60	1.52	1.70	2.41	1.90	1.85	1.33	2.51	40.8	42.2
Micro Industries	6.65	6.36	3.72	0.97	1.78	0.44	0.50	0.40	0.12	0.22	39.0	16.5
Dabur India	6.63	5.41	4.56	17.50	17.50	0.54	0.48	0.46	1.62	1.70	-21.5	4.6
Nagarjuna Fertilizers	6.50	0.19	0.00	0.00	0.00	0.45	0.01	0.00	0.00	0.00	-	7.7
FDC	6.41	5.36	5.41	3.15	2.20	1.89	1.65	1.93	1.47	1.23	30.6	17.3
NTPC	6.30	4.50	4.70	4.90	5.60	0.02	0.02	0.02	0.03	0.03	3.0	10.0
Godfrey Phillips	6.17	3.03	1.94	3.24	0.45	0.97	0.49	0.34	0.64	0.10	92.5	9.9
Colgate-Palmolive	6.11	3.85	6.29	6.27	6.86	0.54	0.40	0.68	0.66	0.62	2.9	0.5
Clariant Chemicals	6.01	4.66	6.11	4.81	4.88	0.71	1.25	1.58	1.32	1.56	5.3	28.4
Exide Industries	6.00	7.03	4.22	4.03	3.07	0.43	0.59	0.44	0.46	0.39	18.2	14.8

Source: SMIE (Prowess Database)

(The Economic Times, 29 January 2007)

Outbound FDI Trebles to \$8 bn

Inflows at \$19 billion in fiscal 2006-07

Indian companies invested \$7.95 billion abroad in 2006-07, a sum just short of the aggregate FDI that flowed into the country in the last decade. This is also three times the 2004-05 FDI outflow.

Mauritius, the UK, the Netherlands, Russia and Cyprus were the top five destinations for Indian investments. The largest outbound deal in 2006 was Tata Tea's acquisition of US-based energy brand Glaceau for \$677 million.

The year 2007 has already witnessed two of the largest overseas deals ever with Tata Steel acquiring the UK's Corus for \$13.6 billion and Hindalco buying Novelis for \$6 billion.

India also received a record \$19 billion in FDI in 2006-07. Prime Minister Dr. Manmohan Singh has complimented Commerce and Industry Minister Shri Kamal Nath for his efforts towards bringing in a record \$19-billion in FDI in 2006-07. Singh said he was optimistic that Nath's ministry would be able to take steps to help meet the FDI target of \$30 billion in fiscal 2007-08.

Of this, \$16 billion were just FDI equity inflows, a 275 per cent jump over \$5.5 billion in 2005-06. If the quantum of retained earnings reinvested by foreign investors in India is added to these figures, the gross FDI in 2005-06 will touch the \$7.7-billion mark. In 2006-07, it was put at \$19 billion.

In this connection, Minister of State for Finance Pawan Kumar Bansal said that overseas investments by Indian companies increased from \$2.80 billion in 2004-05 to \$2.86 billion in 2005-06 and \$7.95 billion in 2006-07. He said the factors that determined the location of investment were the commercial judgment of investors, relative profitability and long-term strategy.

According to an Assocham study, the FDI outflow in 2007 is expected to be over \$15 billion. It has predicted that for a fiscal, the outflows will surpass FDI inflows for the first time.

The number of outbound M&A deals has catapulted over the past six years from about 37 in 2001 to over 170 in 2006, with transactions gathering momentum since 2005. Total number of deals actually doubled in 2005 from 2004 to about 150 from 70 in the previous year. Meanwhile, the number of inbound deals in 2006 grew to 532 in 2006 from 224 in 2001.

In terms of value, the pharmaceuticals and automobile sectors will provide the necessary boost.

(The Financial Express, 5 May 2007)

RECENT POLICY INITIATIVES

Union Budget 2007-08: Technology and R&D Related Highlights

R&D Enhancement

Inflow of foreign investment in R&D for more production in higher spectrum of technologies is required to enhance export competitiveness. The information technology is an important area in this globalized world. Keeping in mind, the Government has announced a new scheme of Rs 33 crore for the manpower development of the software export industry in the Union Budget 2007-08. The Government supports e-governance action plans at State levels too, thus allocation of Rs 500 crore has been increased from Rs 300 crore.

In order to promote R&D, concessional rate of 5 per cent duty has been announced in the Budget 2007-08, which would be available to all public funded research institutions and non-commercial research institutions registered with DSIR. For the pharmaceutical and biotechnology sector when imported for R&D purposes by an importer or a manufacturer having an R&D wing registered with DSIR, duty on 15 specified machinery has been reduced from 7.5 to 5 per cent. Also exemption from excise duty has been extended to specified items when domestically procured by all such research institutions.

Service Tax

Service tax needs to be addressed for encouragement of innovation, exemption from service tax has been granted to all services provided by Technology Business Incubators/ Science and Technology Entrepreneurship Parks recognized by National Science and Technology Entrepreneurship Board of Department of Science and Technology (DST). Similarly, their incubatees whose annual business turnover does not exceed Rs 50 lakh will be exempt from service tax for the first three years. The threshold limit of service tax exemption for service providers has been increased from Rs 4 lakh to Rs 8 lakh. The Export of Services Rules 2005 have been amended. The words "delivered outside India and used outside India" have been substituted with the words "provided for India and used outside India". This provision would be satisfied for any service to be treated as export of service.

Clinical trials have also been removed from the service tax net. The 150 per cent weighted average tax deduction for R&D expenses has been extended for more five years.

www.economicstimes.com

Incremental Exports Get 10% Duty Credit in FTP Supplement 2007-08

In an effort to boost exports of high-technology products, the Government has launched an export promotion scheme under which a duty credit of 10 per cent of incremental export growth will be given as an incentive.

High-tech products could include anything from integrated computer solutions to telecom equipment. The list of eligible products is being drawn up in consultation with concerned Scientific Ministries, Commerce and Industry Minister, Shri Kamal Nath said announcing the annual supplement to Foreign Trade Policy.

(The Financial Express, 20 April 2007)

FDI DEFINITION REVISED

What is Foreign Direct Investment?

The OECD defines foreign direct investment (FDI) as reflecting the objective of obtaining a lasting interest by a resident entity in one economy ('direct investor') in an entity resident in an economy other than that of the investor ('direct investment enterprise').

The lasting interest implies the existence of a long-term relationship between the direct investor and the enterprise and a significant degree of influence on the management.

The economic liberalization initiated in 1991 in response to the balance of payments crisis ended public monopolies and allowed FDI in many sectors. Foreign investors are now allowed to bring in equity either to set up new ventures in the country or through a joint venture.

How was FDI classified earlier?

Until 2000 FDI that came into the country was classified under four broad categories that included the government approval route, RBI approval, NRI and acquisition of shares.

How is FDI classified now?

Since 2000, in line with the best international practices, the government adopted a new definition to include equity capital of unincorporated bodies, reinvested earnings and other capital, which pertains to intercompany debt transfers of FDI entities.

(The Economic Times, 18 April 2007)

RBI may Raise Cap on Overseas Investment

The RBI is considering raising the cap on overseas investments by companies to partly offset the impact of large foreign currency inflows on money supply and in turn inflation.

Companies are currently allowed to invest overseas to the extent of 200 per cent of their net worth every year. The RBI, in consultation with the Government, is exploring the option of allowing companies to invest up to 250 per cent of their net worth overseas.

The discussions follow large inflows on account of investments in equities and projects, exports and remittances by non-resident Indians. In an attempt to prevent the rupee from gaining too much, the RBI was an aggressive buyer of foreign currency in the first two months of calendar 2007.

However, the rupee gained over 2 per cent in March as the RBI stayed away from the foreign exchange market, since buying dollars would have released more rupees into the system and impacted the central bank's efforts to keep a tight check on liquidity.

In fact, the central bank's forex purchases in January and February contributed to a 22.1 per cent rise in money supply in early March, from 19.4 per cent in late December 2006. This, in turn, forced it to raise both the cash reserve ratio — the proportion of cash deposits banks must keep with the RBI — and the rate at which it lends short-term money to banks against government securities.

Allowing higher level of foreign exchange outflows is meant to lower the net foreign exchange inflows. It comes at a time when a growing number of Indian companies are planning overseas acquisitions.

India can consider allowing outflows on account of investments overseas as the foreign exchange reserves position is extremely comfortable. Foreign exchange reserves have increased by \$25.84 to \$203.09 billion since January 2007.

Tarapore Committee report on fuller capital account convertibility had also recommended gradual liberalization of outward FDI. The committee had proposed raising the ceiling for outward investments by companies to 400 per cent of their net worth in three phases.

Bankers said the proposed increase in the investment limit will be a morale booster and indicates the slow but steady transformation towards fuller account convertibility.

(Business Standard, 23 April 2007)

Globalization, Technological Competitiveness and the ‘Catch-up’ Challenge for Developing Countries : Some Lessons of Experience by Jin Zhouying, *International Journal of Technology Management and Sustainable Development*, Vol. 4 No. 1, 2005.

The article attempts to address the question – why developing countries are finding it increasingly difficult to catch up with developed countries in a rapidly globalizing world – is it high technology; is it the knowledge economy or is it something else?

Contemporary trends in globalization and experiences in international development appear to cast doubt on the accumulation of knowledge or high technology as a sufficient condition for commercial and economic success.

Talking of the macro environment as a condition for creating competitiveness, the article classifies macro environment into hard- and soft-environment. The hard environment includes visible and tangible aspects such as infrastructure, the industrial base, and economic strength (the capacity to provide capital or investments). Since innovation consumes more resources than research, the availability of a suitable hard environment is essential for achieving competitiveness. The soft environment includes invisible factors such as the institutional environment (policies, laws, rules and regulations), the international environment, the cultural environment, market conditions, and customer demands (depending upon educational levels, living conditions, cultural background, etc.).

The success of contemporary developed countries can be attributed to factors relating to the emergence of new business technologies and cultures, for instance, modern management techniques, venture capital, virtual technology, incubators, the development of financial instruments, etc. These constitute the soft-technology complex that provide the environment for innovation and the effective application of technologies.

Developing countries are, on the other hand, characterized by the absence of soft technology and limited abilities to make effective and efficient use of the technologies they obtain through a variety of transfer mechanisms, and to innovate and compete in the global market. In contrast to the situation facing companies in developing countries, companies in developed countries

have all the mechanisms – i.e. institutional, organizational, financial, and managerial – to be able to rapidly translate high-tech ideas into new products and processes that would make them competitive players in the global market.

The article states that Japan’s economic success can be attributed largely to resolute institutional reforms; the adoption of appropriate development strategies; and the prevalence of management and organization systems in the Japanese culture. Institutional innovation, development strategy, management and organization systems, are examples of ‘soft technology’. Japan’s comparative advantage in the global market stems from its prowess at developing and applying soft technology.

Referring to China, weakness of computer software industry and lack of a proper system to protect intellectual property have been cited in the paper as the two main reasons for industrial competitiveness problem of China.

The article also demonstrates the role soft technology and soft environment play in achieving competitiveness at the micro level by citing examples of Microsoft & Haier. Both companies used soft technology for continuous innovation. The article describes e-commerce as an innovation in soft technology. The article further, dwells upon strengthening R&D capability as a basis for promoting competitiveness but says that no important inventions can be produced without interdisciplinary research that allows for the synergistic application of expertise from many fields.

The article concludes that overall, soft technology and the soft environment are factors that have for a long time been neglected in developing countries. Knowledge and high technology alone are not enough to increase technological competitiveness.

Three conditions – new initiatives, new strategies, and new management modes – need to be met, so that the competitive potential in knowledge and technology can be activated and converted into actual competitiveness. Soft technology is the means for activating potential competitiveness of knowledge and hard technology; and the macro environment, involving relevant institutions, provides the preconditions for improving competitiveness.

TECHNOLOGY/PROJECT OFFERS

LIST OF SELECT EXPORTABLE TECHNOLOGIES/PROJECTS FROM SMEs IN MADHYA PRADESH, CHHATTISGARH AND ORISSA STATES OF INDIA

Sector	Technology/Project offered	Name of company	Value of offer*
Chemicals	1. Manufacture of Mosquito Repellant Cream	Shrinathji Chemicals, Mandideep	US\$0.24 mn
	2. Manufacture of Refractory Bricks	Shiva Refratech (India) Pvt. Ltd., Rourkela	US\$0.48 mn
Pharmaceutical	3. Manufacture Paracetamol Based Drugs, Antacids	Cyano Pharma (P) Ltd., Indore	US\$0.48 mn
	4. Manufacture of Ayurvedic Medicines	Mohabe Herbal Products Pvt. Ltd., Mandideep	US\$0.24 mn
Electricals	5. Manufacture of Electrical Transformer	Star Delta Transformer Ltd., Bhopal	US\$0.24 mn
	6. Manufacture of Tungsten Filaments	Kuber Lighting Pvt, Ltd., Indore	US\$3.48 mn
Food Processing	7. Manufacture of Alcoholic Beverages	Aegis Beverages Pvt. Ltd., Bilaspur	US\$0.18 mn
	8. Sugar Plant (100 TCD)	Nikhil Sugar Ltd., Harda	US\$2.16 mn
Packaging & Plastics	9. Manufacture of HDPE Tarpaulin & Woven Sacks	Shree Vinayaka Packaging Solution, Indore	US\$0.36 mn
	10. Manufacture of HDPE Bags, Fabric & LDPE Films	Shanti Polypack Industries, Rourkela	US\$0.48 mn
Engineering	11. Manufacture of Material Handling Systems	Tirupati Metals, Indore	US\$2.40 mn
	12. Design & Construction of Blast Furnace	Rourkela Fabrication Pvt. Ltd., Rourkela	US\$3.0 mn
Textiles	13. Manufacture of Woolen Fabrics	Anuj Woolens Pvt. Ltd., Dewas	US\$0.12mn
	14. Manufacture of Synthetic Yarn	Hind Systems Ltd., Dewas	US\$2.24 mn
Miscellaneous	15. Manufacture of Acetate Filter Rods	Hind Filters Ltd., Dewas	US\$2.24 mn

* Value is excluding cost of land & building.

Notes: 1. The above list is an extract from the "Report on Profiles of Exportable Technologies from SMEs in Madhya Pradesh, Chhattisgarh and Orissa States in India" prepared by MPCON, Bhopal for DSIR, Government of India, New Delhi.

2. For any enquiries, please contact : spagarwal@iift.ac.in, ashwani@nic.in