Indo-Dutch Trade Trends

The Netherlands is one of the important trading partners of India in Europe. The total bilateral trade between India and the Netherlands showed an increase of 156.8 % during the period 1990-2002. The balance of trade has been in favour of India since 1992. Figures for Indo-Dutch trade (in millions Euros) indicating percentage changes in Indian exports to the Netherlands, Dutch exports to India, total trade and balance of trade from 1990 onwards are given below:

Indo-Dutch Trade Trends

Year	Indian Exports	% Change	Dutch Exports	% Change	Total Trade	% Change	Balance of Trade
1990	233.24		312.62		545.90		- 79.41
1991	245.95	5.45	262.74	- 15.96	508.69	- 6.82	- 16.79
1992	305.85	24.35	248.67	- 5.36	554.52	9	57.18
1993	409.31	33.83	305.85	22.99	715.16	28.97	103.46
1994	458.32	11.97	302.67	- 1.04	760.99	6.41	155.65
1995	507.33	10.69	343.51	13.49	850.84	11.81	163.81
1996	581.15	14.55	398.53	16	979.68	15.14	182.62
1997	686.62	18.15	430.15	7.93	1116.77	13.99	256.47
1998	690.41	0.55	435.34	1.21	1125.75	0.80	255.07
1999	710.81	2.95	480.78	10.44	1191.59	5.85	230.03
2000	837.05	17.76	537.54	11.80	1374.59	15.36	299.51
2001	881.30	5.02	537.38	0.03	1418.68	4.22	343.92
2002	882.58	0.15	519.35	- 3.47	1401.93	- 1.19	363.23

(Source: Indian Embassy, The Hague)

The Netherlands' investment in India has been relatively small compared to the total investments abroad. As can be seen in the table below, Dutch investments in India started picking up after 1990 when the liberalization process started. The actual growth in investments took place after 1992. Although the Dutch investments are low in comparison to their total investments abroad, there is a noticeable growth. Dutch investments (actual capital flows in each year) in India during the period 1991-2002 (in million Euros) are given below:

Dutch Investment in India

Year	Direct Investments
1991	17
1992	5
1993	35
1994	29
1995	24
1996	35
1997	53
1998	104
1999	221
2000	54
2001	143
2002	43

(Source: Indian Embassy, The Hague)

In terms of total investment approvals accorded by GOI during the period 1991-2002, the Netherlands were the 7th largest in India accounting for a total of Rs 89458.90 million. A break-up of investment approvals (in million Rs) on a year-wise basis was:

FDI Approvals

Year	Value
1991	559.2
1992	967.9
1993	3216.50
1994	2069.60
1995	9664.60
1996	10487.14
1997	8705.43
1998	4962.56
1999	6322.14
2000	44.55
2001	36935.71
2002	5523.57

(Source: Indian Embassy, The Hague)

1. India – an Introduction

INDIA is a kaleidoscope of contrasts: an ancient civilization but a young nation; a rich history and culture but a poor level of social development; one country but many languages; one law but several religions. India's essence is in its innate **diversity.**

1.1 Physical Features

- India is the world's seventh largest country in geographical size, with a geographical area of 3,287,263 square km (about 80 times the size of The Netherlands).
- India is a peninsula, with three sides open to the seas – the Arabian Sea to the west, the Bay of Bengal to the east, and the Indian Ocean to the south, with the Great Himalayas in the north borders.
- India shares political borders with seven countries: Afghanistan and Pakistan (Northwest), China, Bhutan and Nepal (North), and Myanmar and Bangladesh (East).
- India has a wide range of climatic conditions on account of its varied geographical boundaries, but in most parts **the monsoon tropical climate predominates**.
- India has an enormous biodiversity wealth with more than 45000 flora species and 82000 fauna species, due to its wide range of climatic conditions.

1.2 Demographic Profile

Population

- India is the world's **second most populous country** (after China), with the Census 2001 reporting an estimated 1.04 billion people, with a gender ratio of 933 females to 1000 males.

- Nearly **one-fourth of the population lives in urban areas**. The national average population density is 324 persons per sq. Km, but densities in the populated urban districts can be as high as 6880 per sq. km.
- **Twenty-three cities in India have a population exceeding one million people**
- Three cities Mumbai, Calcutta, and Delhi all have populations exceeding 10 million people.
- Nearly one-fourth of India's people live in poverty; most of them in rural areas.
- Only 65.4% of the people can read and write an Indian language and perform simple mathematics
- Literacy levels in women (54.2%) are much lower than in men (75.9 %) At the national level

Languages

Hindi is the national language of India, but there are eighteen officially recognized languages in India. Besides the recognized languages, there are as many as 180 minor languages and 7000 dialects, adding to India's linguistic diversity.

English too was recognized under the Constitution as an additional official language and as the authoritative legislative and judicial language of the Union of India.

English is commonly spoken in most urban areas, almost certainly in all metropolitan cities, and is used by business and social elite throughout the country, and is often the only common language between persons from different parts of India.

Religions and caste

Hinduism is the predominant religion in India, practiced by over 80% of the population. The other important religious denominations include the Muslims (12%), Christians (2%), Sikhs (2%), Buddhists (1%), Jains and Zoroastrians. However, the Constitution grants all citizens of India the **right to freedom to practice any religion** as a fundamental right.

India also has a centuries-old caste system (a hierarchy of classes among people and communities based on their trade/ occupation), which continues to be a part of the Hindu social fabric even in the 21st century. While the Constitution does not distinguish citizens by social classes, several government programmes are targeted for the benefit of deprived and backward castes, which in a way officialize the caste system. However, in daily life, the castes system interferes much less in **urban areas than in rural areas**.

Social Traditions

Enormous diversity exists in food habits, social customs and traditions in different parts, particularly between the northern and southern parts of India. Marriages and festivals are the most important occasions for social gatherings, celebrated with much fanfare all over India. When coming to India for business one should realize that family values are highly appreciated and that respect for elders (especially parents) is required.

Foreigners may also like to note a few essential facts about Indian social customs:

- Non-vegetarian food habits, drinking and smoking are considered unacceptable to some groups, especially the

Brahmins, and are not generally allowed in religious places or during festivals.

- The cow enjoys a special status among the Hindus. Beef consumption is banned in most parts of India.
- The traditional Indian greeting is to fold hands before the other person. It is not customary for women to shake hands with men, although it is gradually becoming accepted in business situations. Kissing in public is not popular. In Hindus, a vermilion dot on a woman's forehead indicates that she is married.

Currency

India's currency is the Rupee, consisting of 100 paise. Standard denominations of the currency in circulation are:

Notes: Five, Ten, Twenty, Fifty, Hundred, Five-hundred and One thousand rupees

Coins: Twenty-five, fifty paise; one, two, and five rupee coins

Besides currency notes and coins, travellers' cheques (for travel only) and credit cards are popularly used in commerce, especially in trade of consumer products and services. All the major international cards are available in India.

The Indian counting system also uses some traditional terms, which are quite different from international standards. Two such Indian terms are the **lakh** (hundred thousand) and the **crore** (ten million), which are widely used in daily life, official reports, and even in banking correspondence. Businesspersons are advised to understand and use these Indian terms in local business dealings.

The exchange value of the Indian rupee is 46.68 per US Dollar and Euro 53.32 (exchange rates of August 2003).

1.3 Government and Legal Framework

- India is a federated Union of States, constituted as a Sovereign Socialist Secular Democratic Republic with a Parliamentary system of government.
- The Republic is governed by the Constitution, which came into force on 26th January 1950 (India's Republic Day).
- At present there are 28 states and 5 Union territories but with some large states having been divided further, India will soon have 30 states officially. Delhi is the Union Capital, and each state has its own capital.

The Constitution

The Constitution of India came into effect on 26th January 1950, three years after Independence. The Indian Constitutional system is basically federal and provides for:

- Distribution/devolution of powers among the states and the Union government
- Supremacy of the Constitution over Parliament
- Authority of the courts to interpret the Constitution.

However, it also has unitary features in form of the overriding powers of the Union Govt. in several matters that are normally State subjects.

There are three levels of government in India: the Union, State and Panchayat (local) governments.

Union Executive

The Union Executive consists of the President, the Vice President and the Council of Ministers headed by the Prime Minister to aid and advice the President in the exercise of his functions. **A Parliament consisting of the President and two houses**, the Council of States (Rajya Sabha) and the

House of the People (Lok Sabha), administers the Union. Similarly, a Governor and one or two houses of legislature administer the States. A Chief Minister appointed by the Governor and his Council of Ministers heads the legislative assembly of each State.

A similar structure of government exists at the state level as well

Legislature

The Legislature of the Union is called Parliament, consisting of the President and two Houses - **an Upper House**, also known as Council of States (Rajya Sabha), and a **Lower House** also known as House of the People (Lok Sabha).

The Lok Sabha:

- Is composed of 552 representatives of the people chosen by direct election
- Functions: legislation, administration, passing of budget, managing international relations and national policies

The Rajya Sabha:

- Consists of 250 members
- 12 of whom are to be nominated by the President
- Must approve of legislations passed in the lower house in some matters

Political Parties

The present Government that came into power in October 1999 is a coalition of 25 parties called the National Democratic Alliance, led by the Bhartiya Janata Party, and it promises to be the first coalition government to complete a full five-year term.

Among the important political parties are:

- National: Bhartiya Janata Party, Indian National Congress Party
- North: Samajwadi Party, Bahujan Samaj Party
- South: AIADMK, DMK, TDP, Janata Party
- East: Trinamul Congress, Communist Party of India, Samta Party, Rashtriya Janta Dal
- West: Shiv Sena, Nationalist Congress Party

Legal system and the Judiciary

- The main sources of Indian Law are the Constitution, Statutes, Customary Laws and Case Laws.
- A single integrated system of courts administers both Union and State laws.
- The apex court is the Supreme Court of India, and each state has its High Court to control the lower judiciary.

The legal system enjoys significant autonomy, and the President appoints the Chief Justices as well as other Supreme Court judges directly. The law provides independence to Supreme Court judges, who cannot be removed (barring cases of misdemeanour) except by a presidential order following a 2/3rds-majority vote in Parliament.

Defence

- The supreme command of the Armed Forces is vested in the President of India.
- The Chiefs of Staff of Army, Navy and Air Force are the administrative and operational heads with the administrative support of the Ministry of Defence.
- The Prime Minister under National Emergencies can also summon the army.

- The army also assists in relief work and restoring law and order in special circumstances.

Enforcement Agencies

India has the Central Bureau of Investigation (CBI) and the Enforcement Directorate (ED) to check against:

- Serious frauds
- Corruption
- Foreign exchange law violations
- Tax evasion
- And other offences by individuals and corporate bodies

A separate department, the Central Vigilance Commission, is entrusted with the task of acting on corruption issues involving government officials. However, the Commission does not have the mandate to deal with corruption involving elected representatives.

Elections

- The parliamentary system of government both at the Centre and in the States is based on adult suffrage, whereby all citizens who are above 18 years of age have the right to be registered as voters.
- The Constitution also provides for determination of seats reserved for backward and scheduled tribes.
- A bill seeking reservation of up to **33% parliamentary seats for women** is before Parliament.
- The Election Commission, an autonomous body with constitutional authority, carries out the role of a watchdog in maintaining the legality and prudential norms for conduct of free and fair elections.

Media

India has a well-established print media with more than 41000 newspapers and periodicals in more than 100 languages and dialects. Several newspapers are more than hundred years old. More than 50 million people in India read newspapers.

Besides the traditional print media, India has a vibrant electronic media network covering almost the entire country. Radio coverage is available to 98% of the population and 90% of the area, while television reaches 88% of the people and 70% of the areas. Across Media, **Radio** and **Internet** are likely to be the star performers with growths of 18% and 20% respectively. **Radio** has emerged with renewed strength. It has seen deregulation and the rise of private FM Channels, which are driving the growth.

Television has emerged as the chief medium in India: 400 million people watch television daily. Satellite television coverage has risen sharply in all parts of the country, and there are more than 100 channels, watched by nearly 55 million viewers. The world's major satellite news channels CNN, BBC, CBS and NBC have footprints covering the entire country.

1.4 External Relations

India is playing an increasingly influential role in the global arena. Trade as well as diplomatic relations have improved significantly in the liberalization era.

United States

The terrorist attacks in New York and Washington on September 11, 2001 have brought about growing understanding between India and the United States to combat the menace of international terrorism, and the pace of bilateral engagement has been unprecedented.

European Union

India has traditionally had a multi-dimensional relationship with the EU, which is its largest trading partner, second-biggest source of foreign direct investment, and a major contributor of developmental aid and important source of technology. India's initial dialogue with the E.C. was limited to economic and commercial links, but is expanding towards a closer political relationship also.

Russia

India and Russia have had a very cordial and friendly relationship historically, especially during the cold war period. The two countries have reinforced their strategic partnership in both bilateral relations and in the international arena. Russia also supports India's inclusion to the permanent members of the UN Security Council.

Neighbour Countries

India has international borders with China, Nepal, Myanmar, Bhutan, Bangladesh, Sri Lanka and Pakistan. Excluding China, all the other countries are members of the SAARC. India also has a number of bilateral or preferential trade arrangements with these countries (except Pakistan).

The political relationship with these countries covers a whole spectrum of states- from military confrontationist readiness with Pakistan, cautious diplomacy and trade initiative with China, and a medley of states with the other smaller neighbours. India is the largest economy in South Asia, but despite being the dominant economic and military power in SAARC, India does not seem to enjoy the warmth of the 'big brother' status in the subcontinent.

1.5 India and the WTO

India is increasingly been seen at the WTO as a spokesperson for the developing world.
The positions and state of the relationship between India and the WTO on major issues are presented below.

Trade Related Intellectual Property Rights

India's patent system is radically different from those in the developed world, and recognizes only process patents in drugs and pharmaceuticals, which allow domestic industry to reverse -engineer any products that are patented in other markets, and file new process patents for the same products. India also does not grant patent rights for life forms including plants, and provides for the free exchange and conservation of breeding materials under the farmers' and researchers' privileges.

India was a protagonist for the Doha Declaration on the TRIPs Agreement and Public Health, which addressed the importance of "promoting access to medicines for all" and recognised the rights of WTO members to grant compulsory licences and to determine the grounds for granting these licences, in particular when public health is at stake.

Agriculture

India's position on Agriculture is to press for market access in the major import markets including the EU. India has submitted its initial negotiating proposals to the World Trade Organisation (WTO) for the mandated negotiations under the Agreement on Agriculture in areas of market access, domestic support; export competition and food security with the objective of protecting its food and livelihood security and increased market access opportunities with a view to promoting its agriculture exports.

Services

India's interest in service negotiations is in the sectors of computer services, professional services, health-related services, social services, construction and engineering services, tourism, and audio-visual services. India has now come up with a request list in 15 out of the 161 services sectors. India's interest in GATS negotiations is most manifest in its pitch for mode-4 supplies i.e. services provided by the movement of natural persons to the consuming place. India has been seeking a waiver or substantial easing of visa rules in such cases, and also a waiver of the Economic Needs Test (ENT) in administering movement of natural persons, which has been used by countries to filter the supply selectively.

2. Economic Profile

The Indian economy has transformed substantially, from an era of extensive controls and licensing in the 1960s, to a liberal market-driven economy with a large involvement of private including foreign enterprise. The economy is broad-based, with well-developed agriculture, industrial and service sectors, including high technology and knowledge-based sectors.

India's economic profile:

- A Gross Domestic Product of Rs 18.9 trillion ($ 474 billion) at factor cost; with a nominal GNP of US$ 460 per capita, in 2001-02
  - A strong agriculture sector, accounting for more than 27% of national output, with self sufficiency in all important crops except oilseeds
  - A diverse industrial base with self reliance in all core industries and a wide range of engineering products
  - A robust services sector accounting for 48% of GDP, driven by a large pool of technical manpower and competitive labour costs
- Home to 1 billion people and a large, growing consumer class estimated at 200 million people.
- A stable external deficit between 1.5 and 2%, and adequate foreign currency reserves to meet external payments
- A western model of legal and accounting system
- A policy environment with periodic liberalization of investment and trade regulations

The Indian economy is presently maintaining a growth rate around 5%, and has targeted a growth of 8% under the Tenth Five Year Plan, with an increased role of service sectors.

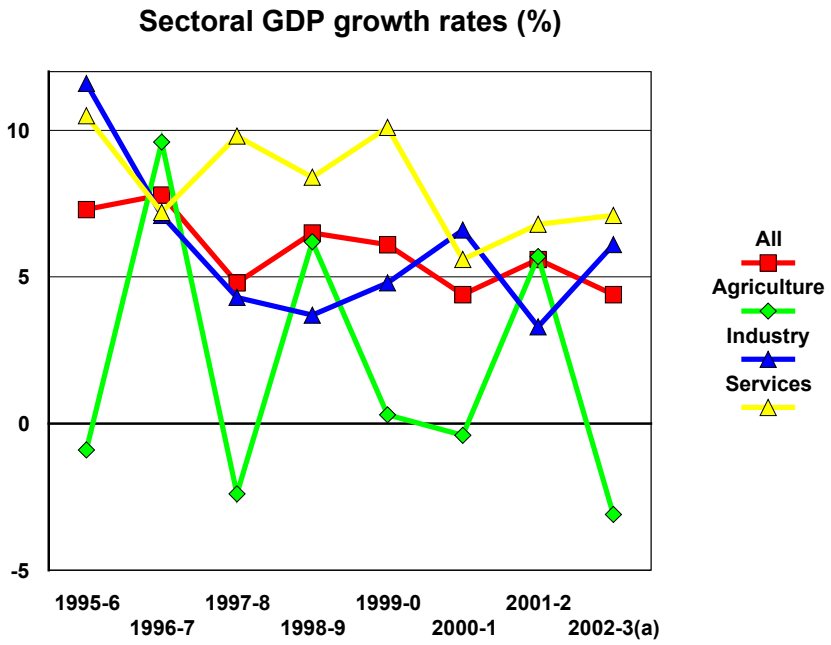
Table 2.1 GDP break-up current prices

Sector	Rs bn	GDP Share
Agriculture and allied sectors	4818.95	28.4
Manufacturing, construction, power, water and gas	3761.28	22.2
Banking, finance, insurance, business services	2132.96	12.6
Transport communication and trade	3638.72	21.4
Public services and defence	2622.05	15.4
Total Output value	16973.96	100%

Source: Economic Survey

2.1 Principal Sectors

India's GDP comes from three principal sectors, Agriculture, Manufacturing and Services. Services- including real estate, transportation, financial services and other business and social services-account for 48% of GDP, while agriculture and allied activities account for 27%.



2.1.1 Agriculture

Agriculture, with a market output of Rs 5176 billion, is a key sector in the Indian economy and contributes more than 27% of the national product. For a large section (almost 65%) of the population, agriculture is a means of subsistence and livelihood. However, more than 80% of the land under small, marginal farmers having land holdings of less than 2 hectares.

India has a wide range of climate and soil types, enabling a diversified agriculture base. India's important crops are: rice, wheat, coarse cereals, cotton, sugarcane, tobacco, pulses and oilseeds, besides a large range of fruits and vegetables. India is among the top five producers of several food grains and horticulture produce as well as major plantation crops. India also has a large livestock and fisheries sector and is the world's largest producer of milk.

Agriculture performance is **critically dependent** on monsoons, as nearly 45% of the agriculture area remains non-irrigated. Vagaries of rainfall can have devastating effects on crops and cause volatile fluctuations in crop harvests, as evident from the agriculture growth trends in the past six years.

There is considerable Govt. intervention in the sector, in the form of farmer subsidies, government-supported rural infrastructure, extension services, and price support to agriculture produce.

Agriculture also plays an important role in India's exports. Basmati rice, spices, cashew, processed fruits, and meat products are the major product groups. In the first six months of 2002-03, agriculture exports were estimated to be $ 3.49 billion, about 12% of total exports for the period. However, **India's share is less than 1% of the world trade in agricultural products**, and is essentially in the form of primary commodities.

2.1.2 Manufacturing

India has a broad-based industrial base, covering a large range of basic, intermediate and consumer goods. The industrial structure includes several large public sector undertakings (government/state promoted units), a large private sector:

- More than 200,000 factories,
- 2 million cottage and small-scale enterprises,
- A work force of 14 million workers, and 4 million trained technical personnel.

Since liberalization, a large share of foreign direct investment has come into the manufacturing sector, including export-based activities.

Manufacturing currently represents 24% of gross domestic product (at factor cost) and nearly **75% of India's exports**. Chemicals, machinery and equipment, food processing, textiles and apparel, transportation goods, metals and plastic products are the most important groups by output value. Major export earners are gems/jewellery, textiles, metal products, leather goods, transport equipment, and machinery.

2.2 Public Sector Undertakings (PSUs)

India's industrial and economic development policy in the 1950s and 1960s were based on a mild socialist model, with public sector (state-owned and managed) enterprises as engines of industrialization, economic growth and large-scale employment. It was believed that a dominant public sector would reduce the inequality of income and wealth and advance the general prosperity of the nation. Government investment in the public sector is presently Rs. 2,525 billion, almost 94 percent of the

total revenue receipts of the Government of India and half of the total external debt of India.

Small Scale Industries

India's small-scale industries play a vital role in the economy: it has over 3 million units, contributes almost 40% of the gross industrial value added and 45% of exports. The SSI sector dominates in sports goods, readymade garments, knitwear, plastic products, processed food and leather products.

2.3 Infrastructure

Infrastructure development is a key theme in India's economic policy, given its linkages with GDP growth and trade expansion. The thrust of infrastructure policies in the nineties has been the gradual decontrol and privatization of core infrastructure services such as power, telecommunications, airports, roads, and ports, which were under government monopoly.

Major reforms have been undertaken in respect of power, telecom, roads and civil aviation, allowing private and foreign ownership and the entry of institutional finance on a commercially viable basis.

Infrastructure segments grew by 5.4% in 2001-02, compared to 2.5% the previous year. Power generation grew by 3.7%, railway freight traffic by 6.5%, port cargo by 8.7%, and air passenger traffic by 8.8%, air cargo 14%, telephone connections by 17%. The most spectacular development has been in national highway construction, with more than **4000 km of national highways being upgraded/strengthened** in the first six months of 2002-03, a 99% increase over the previous year.

Table 2.2 Infrastructure

Sector	India	The Netherlands
Power	513 bn KwH, primarily thermal	
Telecommunications	39 million lines, of which 12 million cellular lines	9 million main lines in use and over 4 million cellular lines in 1999
Roads	National network of 3.3 million km, of which 58.112 km are national highways, catering to 45% of national transport traffic	A highway network of 116.000 km
Ports	12 major ports and 194 minor ports, handling 290 million tonnes of cargo.	Several ports with Rotterdam port handling over 300 million tonnes of cargo
Railways	A network of 63140 route km, carrying nearly 500 million tonnes of freight and 5 billion passengers	A network of 2808 route km
Civil aviation	More than 39 million passengers and 0.86 million tonnes of cargo handled at airports	Just below 42 million passengers in 2002 and more than 1.2 million tonnes of cargo handled at airports

The Govt. has resolved impediments and created the legal mechanisms to pave way for private ownership of infrastructure assets, foreign direct investment, autonomous regulatory authority, fiscal incentives such as tax-holidays and exemptions for funds invested in infrastructure, and special purpose

vehicles to lease out, manage and transfer ownership of assets under Build-Operate-Transfer and other models.

2.4 Banking and Finance

India has a well-developed banking and financial institutions, ranking among the best in developing nations. The banking network extends through more than 300 commercial banks, including public sector banks (nationalized banks), private Indian banks and foreign banks. Among them we find three large internationally operating **Dutch banks: ABN-Amro, ING and Rabobank.**

Besides banks, development financial assistance to industry and trade is provided by three premier financial institutions – the Industrial Development Bank of India (IDBI), the Industrial Finance Corporation of India (IFCI) and the Industrial Credit and Investment Corporation of India (ICICI) – in the form of term loans, foreign currency credit lines, etc within the ambit of the central bank (Reserve Bank of India) regulations.

In addition to the normal banking network, special institutions like the Life Insurance Corporation of India (LIC), General Insurance Corporation of India (GIC), Unit Trust of India (UTI) and Mutual Funds form the base for long term funding to the Government Central Plan finances, and other long-term finances to the industrial and social sector.

Table 2.3 India's Budget Profile

Rupee Comes from		**Rupee Goes to**	
Borrowings and liabilities	30	Interest	24
Excise duty	19	Central Plan expenditure	14
Customs duty	10	Defence	13
Corporation tax	10	State share of taxes and	13

		duties	
Personal tax	9	Subsidies	12
Non debt capital receipts	6	State Plan assistance	10
Other taxes	2	Non plan assistance to states	4
Non-tax revenue	14	Other non plan expenditure	12

2.5 Government Performance

Fiscal consolidation is a major challenge in India's public finance administration, as rising fiscal deficits continue to force government to resort to increased borrowings and constrain growth. **The fiscal deficit has ballooned to 5.9% of GDP,** way off the target of 5.3% set for 2002-03. The more concerning aspect is that the government has actually lowered the fiscal deficit target for the current year to 5.6%.

The government's poor showing in expenditure management is the most worrisome aspect of the state of India's public finance. With lower shares of government revenue coming in from taxes (an inevitable outcome of tax rationalization), and political compulsions stalling the privatization and disinvestment process in government owned companies, the government has shown an insatiable appetite for ***borrowings***.

Borrowings account for more than 87% of the government's capital receipts. The internal debt is more than 46% of the GDP in 2003-04. **Huge interest payments on current borrowings are pushing the government into a serious debt situation.**

Table 2.4 2002-2003 Budget at a glance (In Rs billion)

	2001-02 Actual	2002-03 Budget Estimates	2002-03 Revised Estimates	2003-04 Budget Estimates
1. Revenue receipts	2014.49	2451.05	2369.36	2539.35
Tax revenue (Net to Centre)	1336.62	1729.65	1641.77	1841.69
Non-tax revenue	677.87	721.40	727.59	697.66
2. **Capital receipts**	1610.44	1652.04	1670.77	1848.60
Recoveries of loans	164.03	176.80	182.51	180.23
Other receipts	36.46	120.00	33.60	132.00
Borrowings / liabilities	1409.55	1355.24	1454.66	1536.37
3**. Total receipts (1+2)**	3624.53	4103.09	4040.13	4387.95
4. Non-plan expenditure	2612.59	2968.09	2899.24	3178.21
On revenue account,	2399.54	2701.69	2689.79	2893.84
of which interest payments	1074.60	1173.90	1156.63	1232.23
On capital account	213.05	266.40	209.45	284.37
5. Plan Expenditure	1011.94	1135.00	1140.89	1209.74
On revenue account	616.57	703.13	726.69	768.43
On capital account	395.37	431.87	414.20	441.31
6. **Total Expenditure (4+5)**	3624.53	4103.09	4040.13	4387.95
Revenue Expenditure	3016.11	3404.82	3416.48	3662.27
Capital expenditure	608.42	698.27	623.65	725.68
7. Revenue deficit	1001.62	953.77	1047.12	1122.92
8. Fiscal deficit	1409.55	1355.24	1454.66	1536.37
9. Primary deficit	334.95	181.34	298.03	304.14
Memo items (per cent of GDP)				
Revenue deficit	4.3	3.8	4.3	4.1
Fiscal deficit	**6.1**	**5.3**	**5.9**	**5.6**
Primary deficit	1.5	0.7	1.2	1.1

- Revenue deficit (Revenue expenditure-Revenue receipts)
- Fiscal deficits (Revenue deficit + capital expenditure)
- Primary Fiscal deficit (Gross fiscal deficit – Interest payments)

Meanwhile, the government has increased expenditure allocation by 7 %, **most of the increase in non-plan expenditure is to provide for increase in interest, subsidy, defence and grants to states.**

2.5.3 Inflation

Inflation continued to be low in the year, with the 52-week WPI average in January being only 2.6%. Interest rates have moved down by nearly 5% in the past five years, and have been deregulated for commercial purposes (i.e. except savings deposits).

2.6 External Sector

The year has also seen some positive developments in the external sector, which strengthen India's macro economic profile amidst these tough conditions. Exports grew sharply – by 20.4% during Apr-Dec'2002- despite recessive global conditions and an appreciating rupee.

Table 2.5 Selected indicators of external sector

Item/Year	90-91	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03
1.Growth of exports-BOP %	9.0	20.3	5.6	4.5	-3.9	9.5	19.6	0.0	20.4@
2.Growth of imports-BOP%	14.4	21.6	12.1	4.6	-7.1	16.5	7.0	-2.8	14.5@
As % GDP at Current Market Price									
3.Exports	5.8	9.1	8.9	8.7	8.3	8.4	9.8	9.4	
4.Imports	8.8	12.3	12.7	12.5	11.5	12.4	13.0	12.0	
5.Trade balance	-3.0	-3.2	-3.8	-3.8	-3.2	-4.0	-3.1	-2.6	
6.Invisible balance	-0.1	1.6	2.7	2.4	2.2	3.0	2.6	2.9	
7.Current-account balance	-3.1	-1.7	-1.2	-1.4	-1.0	-1.1	-0.5	0.3	
8.External Debt	28.7	27.0	24.5	24.3	23.6	22.1	22.4	20.9	
9.Debt Service Payments	2.8	3.4	3.2	2.7	2.6	2.5	2.9	2.4	

@ based on DGCI & trade data for April-December 2002

Table Exports, Imports and Trade Balance US$ Mn

Principal Exports		
Category	2001-02	2002-03 (Apr-Sept) Rs Cr
Textiles	9594	26192 (5693.91)
Gems & Jewellery	7306	21687 (4714.56)
Chemicals & Allied Products	5984	17029 (3701.95)
Engineering Goods	6873	16241 (3530.65)
Agriculture & Allied Products	5855	9550 (2076.08)
Petroleum Products	2125	6120 (1330.43)
Principal Imports		
Petroleum Crude & Products	6679 (1451.95)	42258 (9186.52)
Pearls, precious & semi precious stones	22046 (4792.60)	15128 (3288.69)
Machinery	23045 (5009.78)	12097 (2629.78)
Electronic goods inc. Computer software	19070 (4145.65)	11636 (2529.56)
Organic & Inorganic Chemicals	13352 (2902.26)	7023 (1526.73)

Source Ministry of Commerce & Industry Annual Report

2.6.4 Composition and Direction of Merchandise Trade

Imports: India's major import items are mineral fuels, precious stones and precious metals (rough diamonds, gold and silver) and capital goods. Principal import origins are OPEC, Asia, EU, USA, Japan and Russia, in descending order. The fastest-growing imports are fertilizers, semi precious and precious stones, wood and edible oil.

Exports: India's largest merchandise exports are Gems and jewellery, agriculture products, ready-made apparel, cotton yarn and fabrics, leather goods and handicrafts. India's major export markets are EU, USA, Asia, and Japan in descending order. In commodities, cashew nuts, transport equipment, iron and steel goods, gems and jewellery recorded the highest growth in 1999-00. Of late, service exports, especially software and Infotech, have become a significant and rapidly growing source of foreign

exchange earnings for India. However, they are not represented in the merchandise Export-Import data and appear in the category of services and 'invisibles' in the economic survey.

2.6.5 Foreign Exchange reserves

For the first time in 23 years, India has posted a current account surplus (0.3% of GDP) on the Balance of Payments front, resulting from increased workmen remittances, service exports (which are reported under invisibles) and, to an extent, short-term flows to arbitrage India's high interest differential with the LIBOR, despite low inflation rates. India's foreign currency reserves including gold, SDRs and foreign currency have zoomed to $80.816 bn in May 2003. After May 2003, the rupee has moved upward against the US dollar though it has depreciated against other currencies such as the Euro, pound sterling and yen.

2.6.6 External Debt

In September 2002, India's external debt stood at US$ 101.97bn, of which short-term debt (less than one-year maturity) accounted for $3.03bn. India is a large beneficiary of World Bank loans and other multilateral credit bodies in the region.

The present value of India's debt is US$ 71bn, of which concessional debt accounts for more than 38%. India's debt indicators were among the best among the top 15 debtor countries of the world. The World Bank has upgraded India to the classification of 'less-indebted', from the 1998 classification under 'moderately indebted'.

2.6.7 Foreign Investment

Foreign Investment flows rose to US$5.9 billion in 2001-02 demonstrative of growing global investor's confidence in the Indian economy. Inflows under FDI touched a high of US$ 3.9 billion during 2001-02.

Table 2.6 Foreign component of the proposed investment in India

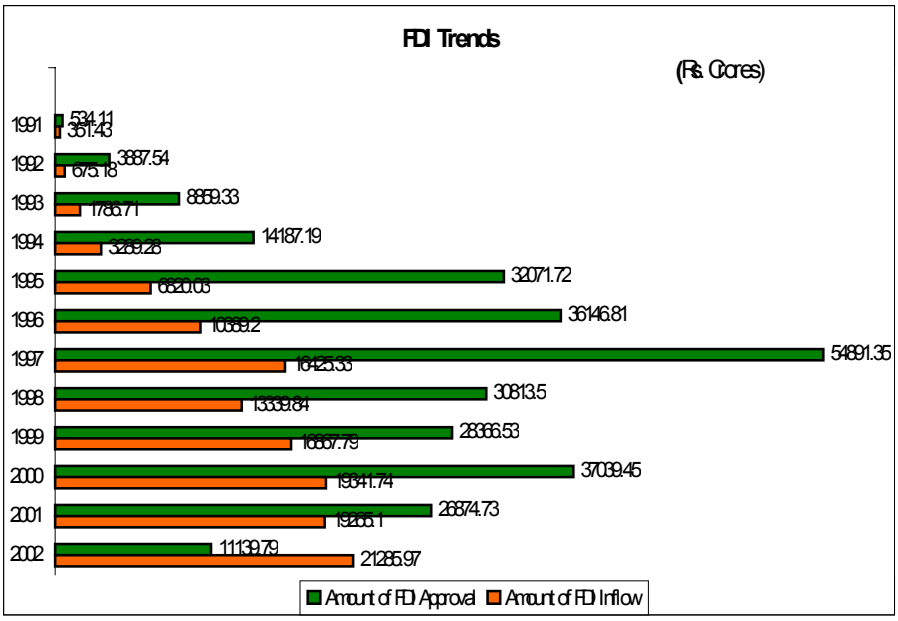
Category	Number		Foreign Equity (Rs in Crore)	
	Nov 2002	Aug 91-Nov 2002	Nov 2002	Aug 91-Nov2002
FDI	92	12876	350	212640
NRI	8	1011	19	9025
FDI+NRI	**100**	**13887**	**369**	**221665**
EOU with FDI/NRI	1	1778	0	13335
GDRs	0	96	0	48447
Total	**101**	**15761**	**369**	**283447**

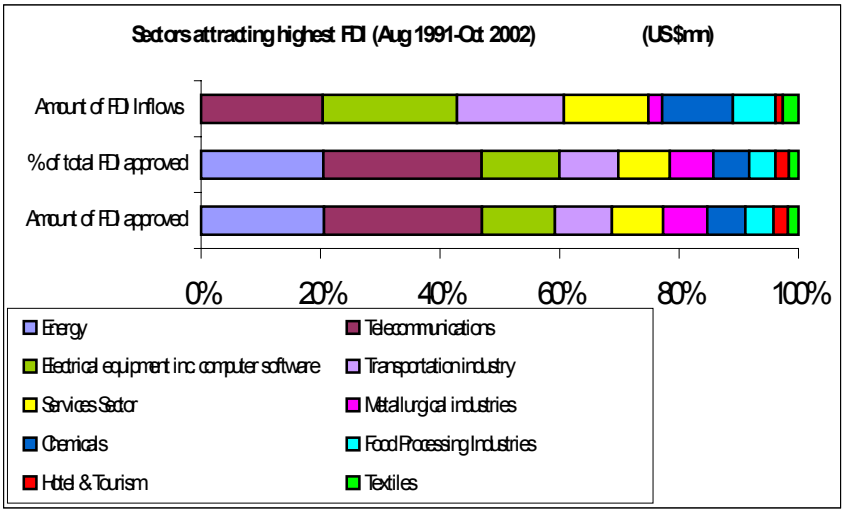
Source SIA Statistics January 2003

Table 2.7 Share of top investing countries in FDI inflows

US$ million

Country	2001	2002 (Jan-Oct)	Amount of FDI inflow (1991-02)	% in total
Mauritius	1625.1	1038.1	6811.1	38.7
USA	322.9	225.9	3194.6	17.1
Japan	211.2	67.5	1254.8	6.8
UK	60	211.2	988	5.2
Germany	107.1	91.2	936.9	5
Netherlands	77.6	84.3	845	4.5





Source: Ministry of commerce & Industry Annual Report

2.7 India and China

International investors interested in opportunities in Asia invariably compare business environment and opportunities in India and China, though such a comparison may not always be valid.

International investors cite the following overriding advantages of manufacturing in China over other business locations in Asia:

- Efficient and cost-effective infrastructure across most parts of the country, especially in coastal regions

- Large-scale availability of labour, with reduced interference of domestic legislation in foreign-invested and exporting enterprises, although this has created human rights issues in some cases (Nike's sweat shops, for instance)
- Stability of business regulations and negotiated investment conditions (states can sign contracts offering specific tariffs and other specific incentives for individual enterprises)
- Non-applicability of import tariffs on initial capital goods (including second-hand goods)
- Duty-free or preferential domestic market access for goods produced in special economic zones
- Positive income tax treatment of foreign investors (upto 33% less than domestic enterprises)

As a result, global companies could embark on a model that combined the advantages of China's labour cost advantages, improving industrial infrastructure, international connectivity and domestic market access, resulting in competitive exports, as well as entry into a highly regulated market as a result of local presence in special economic zones. China's SEZs account for nearly 65% of national exports, and

However, the major limitations as reported by investors are:

- Weak intellectual property regime
- Macroeconomic risks arising from banking system – bad loans to state-owned enterprises
- Nascence in knowledge-based service sectors, especially in English language mode
- Legal system incompatible with international models, although accession to WTO is changing this for the better

India's larger share of foreign investment in services and knowledge-based sectors such as banking, insurance, information technology, biotechnology and pharma reflect these differences between the two countries.

Table 2.8 India & China: A comparison

	Unit	India	China
Demography			
Population	Mn	1033	1272
Labour force	Mn	451	757
National Income			
GDP	US$ Bn	478	1159
Share in GDP			
Agriculture	%	27	15
Industry	%	27	52
Manufacturing	%	16	35
Services	%	48	33
Infrastructure & communication			
Electricity production	Bn Kwh.	527	1239
Electricity consumption per capita	Kwh	379	758
Rail route	Kms	62.5	56.7
Air passengers carried	'000s	17339	61892
Motor vehicles	Per 1000 people	7	8
TV sets	Per 1000 people	78	293
Telephone main lines	Per 1000 people	32	112
Cellular Mobile Subscribers	Per 1000 people	4	66
Personal Computers	Per 1000 people	4.5	15.9
Internet hosts	Per 10000 people	0.8	0.6
Scientists and engineers in R&D	Per Mn people	158	459
R&D expenditure	% of GNP	0.6	0.1
Social Sector Indicators			
Gross enrolment ratio primary schools	%	100	107
Labour cost per worker in manufacturing	$ Per year	1192	729
Education expenditure	% of GNP	3.2	2.3
Undernourished People	% of total population	23	9

3. Foreign Investment Regulations

3.1 Foreign Investment Principles:

India's foreign investment regulations are based on the following principles:

- **No investment by** foreign companies (also Non- Resident Indians and Overseas Corporate Bodies held by NRIs), is permitted in the following areas:
- *Industries reserved for the Public Sector*
- *Agriculture (including plantation)*
- In some sectors, such as telecommunication services, insurance, aviation and banking, foreign investment is **allowed only with specific prior approval, and up to specified limits of shareholding.**
- Foreign investment is **allowed on an automatic basis** in several sectors, within specified limits (ranging from 24% to 100% depending on the sector) of foreign shareholding. Such investments do not require prior approval of the Govt. of India, and only require to be notified to the Reserve Bank of India within a specified period of receiving the shares.
- Even in sectors that allow for investment on an automatic route, investments beyond the permissible sector limit, and investments by foreign companies already having collaborations in India in the same or allied areas, require **specific prior approval.**
- Foreign equity is limited to 24% in small-scale industries1

1The Government has reserved more 675 products to be manufactured only in small-scale industries, i.e., in these industries; investment in plant and machinery may not exceed Rs.10 million (enhanced to Rs. 50 million in some items, such as ready made apparel). Higher levels of foreign equity, including up to 100%, can be permitted for export-oriented units in these products

The list of sectors, the type of approval and the sector-specific foreign shareholding limits appears as Annex I.

Automatic Approvals

For applications that are eligible for automatic approvals, details such as name and details of the foreign collaborator, details of shares allotted, are to be filed within 30 days of the issue and export of share certificates to the foreign investor/ collaborator along with a copy of the foreign collaboration agreement, the original foreign inward remittance certificate and other specified information. These details are to be sent as prescribed in Form FC GPR, to the regional office of the Reserve Bank of India. For further details, please refer to the Exchange Control Manual or the RBI website www.rbi.org.

Specific Approvals

Applications under the specific approval route are to be submitted to the Secretariat for Industrial Assistance (SIA), housed in the Ministry of Commerce and Industry, New Delhi. Applications are placed for approval at the weekly meetings of the Foreign Investment Promotion Board, a multi-departmental panel of high officials. The FIPB considers each application in its totality and free from all other parameters.

Usually, 50 or more proposals are disposed of at each meeting, while some are deferred for further clarifications from applicants or other departments. Weightage is given to the employment potential, inflow of foreign exchange through exports, long term competitive advantage to India and favourable alignment of the proposals with Govt priorities like poverty alleviation, infrastructure

development etc. Approvals are usually accorded within 30 days.

The FIPB is empowered to clear cases involving foreign equity investment upto Rs 15 billion. All cases involving higher investments, as well as applications rejected by the FIPB, are referred to the Cabinet Committee for Foreign Investment (CCFI) for its final decision.

The SIA website now has an automatic tracking system for all SIA applications, which can be accessed through its web site www.indmin.nic.in by feeding the application registration number.

3.2 Investment in Existing Companies

Foreign companies can take equity in existing Indian companies in accordance with the same guidelines as applying to fresh investments. However, for such investment to qualify under the automatic route, the foreign equity must result in an expansion of business plans and/ or an increase in equity share capital of the Indian investee company. In all other cases, including a restructuring of equity among existing shareholders, specific approval is required.

Preferential Allotment:

It is common for existing Indian companies to induct foreign equity by a special allotment of shares on a non-rights (preferential) basis, to meet a foreign investor's equity holding as approved. In case of foreign investment through a preferential allotment of shares, the following conditions apply:

- The price shall not be below the Fair Value of the Share as determined and certified by an independent Chartered Accountant;
- The application must be accompanied by a Board Resolution of the Indian Company and consent letter of the Indian partner/ foreign collaborator; and
- A Shareholders' special resolution (requiring three-fourths majority) in favour of the allotment in case of public limited companies

3.3 Investment in Overseas Issues of Indian Companies

Foreign entities can also subscribe to Global Depository Receipts (GDR), American Depository Receipts (ADR) and Foreign Currency convertible Bonds (FCCB), which are securities issued by Indian companies in foreign currency outside India. These securities:

- Are freely transferable among non-residents on notifying the overseas Depository bank nominated for the security
- Are fully convertible outside India
- May also be transferred to residents in India, provided the sale is made on a stock exchange or in terms of an offer for takeover of the company.

Investment in overseas issues is also counted while determining breach of sector ceilings.

For full details, refer to www.sebi.gov.in

3.4 Investment in 100% Export Oriented Units, Free Trade Zones and Special Economic Zones

India has special regulations for units set up primarily for the purpose of exports. Such units may be set up as 100% Export Oriented Units (EOUs), within the domestic territory, or in notified Free Trade Zones/ Export Processing Zones (EPZs) which are bonded areas developed by the Govt., or Special Economic Zones, which are deemed foreign territories within India.

These units can be set up for a range of activities, including industrial production, assembly, services, and bonded-warehousing, subject to undertaking obligations for attaining prescribed export earnings and net positive foreign-exchange earnings.

While 100% Export Oriented Units may be set up anywhere in India, Export Processing Zones (EPZs) are special locations with readily available developed land, standard design factory building, built-up sheds, roads, power, water supply and drainage and customs clearance facilities. At present, there are seven designed EPZs, in Kandla, Gujarat; Mumbai, Maharashtra; Chennai, Tamil Nadu; Cochin, Kerala; NOIDA (near New Delhi), Uttar Pradesh; Visakhapatnam, Andhra Pradesh and Falta (near Calcutta), West Bengal.

The salient features of the investment and trade regulations for such units are:

- Foreign investment upto 100% is allowed with full repatriation on an automatic basis
- Industrial inputs, including capital goods, are fully exempt from customs duty, excise duty and sales tax (under a legal

undertaking to pay duties if exports do not materialise as committed)

- Exemption from sales tax and excise duties (VAT) on all domestic purchases of capital goods, raw materials and inputs
- All goods- including those exclusively reserved for small scale industries- may be manufactured
- Subject to the fulfilment of export obligations and value addition, sales in the domestic tariff area is allowed upto 50% of the value of exports, on payment of a concessional import duty
- Export oriented units may **be debonded** after five years, after payment of import duties on the residual value of the goods, provided they have achieved the committed foreign exchange and export undertakings.
- EOUs and Free Zone units are fully exempt from income tax up to April 2010.

Applications for setting up export-oriented units can be made to the concerned Development Commissioner of the EPZ or to the Secretariat of Industrial Approvals, and may be cleared under an automatic route or by specific approvals, as set forth in the guidelines.

Special Economic Zones (SEZ):

Special Economic Zones are a new instrument of India's investment and trade regulations, announced in April 2001. SEZs are modelled on the principles of successful industrial Free Zones such as Singapore, Dubai and Schengen (South China), **and are deemed 'foreign territory' where several Indian economic and corporate laws shall not apply**. SEZs must have a minimum area of 1000 hectares, and need to be sponsored by the state government, with or without private sector partners. As of June 2003, more than 20 SEZs, including many with

private sector participation, have been approved all over India, but none of them is yet ready for operations.

(Further details are available at www.sezindia.nic.in)

3.5 Investment in Software Technology Parks/Electronic Hardware Technology Parks

To facilitate exports of electronic hardware and software projects, the Government has announced the Software Technology Parks Scheme, and Electronic Hardware Technology Parks schemes, on the lines of other EOUs.

There are 16 STPs in India, which provide:

- State of the art, high speed data communication (HSDC) links through international gateways at twelve locations- international gateways
- International Private leased Circuits from 64 kbps to 2 Mbps
- TCP/IP networks with full access to Internet
- International video conferencing services
- Incubation infrastructure for start up space

Foreign investments upto 100% equity holdings are allowed in units set up under these schemes, subject to the following conditions:

- An export of 150% of the value of hardware and software imports, to be met over 4 years; and
- Annual exports of at least 150% the wage bill of the unit.

Software export units, including IT enabled services such as medical transcription centres, remote back office services, and international call centres, etc., qualify for all the export tax benefits as other export oriented units, and **are tax exempt till April 2010**.

For further details please refer to www.stpi.soft.net

3.6 Foreign Investment in Trading Activities

Foreign investment ***up to 51%*** *is permitted* ***under automatic route for export-based trading activities****, provided the undertaking is a government-recognized export house/trading house/ super trading/ trading house/ star trading house.*

*However, under the FIPB route****, even 100% FDI is permitted*** *in case of trading companies for the following activities:*

- *Exports;*
- *Bulk imports with sale from bonded warehouses;*
- *Cash and carry wholesale trading;*
- *Other import goods or services provided at least 75% is for procurement and sale of goods and services among the companies of the same group and not for third party use or onward transfer / distribution/sales*
- *Specified activities as appearing in the investment policy*

3.7 Foreign Institutional Investments

Foreign institutions, including pension funds, mutual funds, investment trusts, endowments, university funds, foundations or charitable trusts, etc. are permitted to invest in all securities i.e. equity shares/debentures/convertible debentures/ rights renunciations/warrants of listed as well as unlisted Indian companies, dated Govt. securities, treasury bills and units of domestic mutual fund schemes in the primary and secondary markets. **FIIs have become the most important players in India's secondary markets.**

The ceiling for overall investment for FIIs is 24 per cent of the paid up capital of the Indian company, and 20 per cent in the case of

public sector banks. The investment can be raised beyond the ceiling subject to the approval of the board and the general body of the company passing a special resolution (three-fourths majority) to that effect.

Approvals for setting up and registration of FIIs are granted by the Reserve Bank of India (RBI) and the Securities Exchange Board of India (SEBI). All market operations of FIIs must be routed through a designated bank, which shall furnish the RBI a daily statement of holdings, purchases and sales by the FII to monitor the overall ceilings.

3.8 Repatriation of capital

Repatriation of investments made in India with the approval of the Government of India/Reserve Bank:

- Is permissible (except where investment was permitted on a specific condition that it will not be eligible for repatriation)
- Provided the disinvestment has also been made with the approval of the Reserve Bank.

Repatriation can only be done through an authorised foreign exchange dealer on fulfilment of the following conditions before repatriation:

- Approval from the RBI for disinvestment
- No objection /Tax clearance from income Tax Department
- Production of a chartered accountant certificate in case of repatriation of sale proceeds from bulk holdings exceeding 5% of the company's paid up capital

3.9 Liaison and Branch Offices

Liaison offices and branch offices do not come under the category of foreign direct investment.

Liaison Offices: Liaison offices may not engage in any direct commercial activity whatsoever. They are allowed to

develop trade relations, collect market information, inspect and coordinate purchases for exports to the parent company.

Regulations

- A liaison office **is not entitled to earn any income**, commissions or other remuneration in India
- The Liaison office shall not carry out any trading, commercial or industrial activity without the prior permission of the Reserve Bank of India (usually not given)
- All expenses of a Liaison Office need to be met exclusively from overseas remittances through normal banking channels
- Annual statement of remittances received and annual accounts authenticated by an accountant need to be filed with the Reserve Bank

Permissions for liaison offices are normally granted for a specific period not exceeding 3 years.

Branch Offices: Branch operations have been present in India for several decades in service sectors like banking, shipping, airlines, insurance etc., based on reciprocal arrangements. However, the current policy provides for manufacturing and trading companies to set up branches for carrying out following activities:

- Represent the parent company or other foreign companies as buying/selling agents
- Conduct research in which the parent company is engaged, provided the results of such research are made available to Indian companies also
- Undertake export/ import trading activities
- Promote technical and financial collaborations between Indian and foreign companies.

However, with foreign investment being allowed even in several trading activities, with repatriation benefits and lower taxes

(Indian entities pay lower income tax than branch offices), **the branch office structure is becoming less relevant.**

Applications for a liaison office or branch offices are approved by the Reserve Bank of India.

3.10 Foreign Technology Agreements

Foreign technology agreements are allowed in all industries (including reserved industries and industries involving compulsory licensing). Approvals are automatic for agreements involving;

- Lump sum fee not exceeding US $ 2 million, and royalties upto 5% on domestic sales and upto 10% on export sales;
- A total payment ceiling of 8% of total sales over a 10-year period from the date of agreement, or 7 years from the start of commercial production, whichever is earlier.

In all other cases, specific approval of the SIA is required.

Extension/revalidation of existing or earlier technology agreements are not automatic, and require fresh approval on specific merit, based on the satisfactory absorption of earlier know how.

For the purpose of remittances, royalties are calculated on the basis of a standard formula (royalties are calculated on net sales after deductions of imported raw materials, duties and cost of standard bought out components).

For agreements in which no technology transfer is envisaged, payment of marketing royalties- for use of brand name/ licence- up to 1% of sales is also allowed under the automatic route.

3.11 Hiring of Foreign Technicians

No prior approval is necessary for engaging foreign technicians on short-term basis, subject to following guidelines:

- The stay of each technician shall not exceed 3 months at a time, (if not, prior clearance by Ministry of home affairs is needed).
- Total duration of engagement shall not exceed 12 man-months in a calendar year.
- Per diem rates do not exceed US $ 1000, and total annual outflow on this account to any does not exceed US $ 200.000 in a calendar year.

Annex I

Sector Specific Caps for foreign collaborations/investment

1. Banking

Private Sector Banking

49% from all sources on the automatic route subject to guidelines issued by RBI from time to time.

Non Banking Financial Companies (NBFC)

FDI /NRI/OCB investments allowed in the following 17 NBFC activities shall be as per levels indicated below:

(i) Merchant banking;
(ii) Underwriting
(iii) Portfolio Management Services
(iv) Investment advisory services
(v) Financial Consultancy
(vi) Stock Broking
(vii) Asset Management
(viii) Venture Capital
(ix) Custodial Services
(x) Factoring
(xi) Credit Reference agencies
(xii) Credit Rating Agencies
(xiii) Leasing and Finance
(xiv) Housing Finance
(xv) Forex Broking
(xvi) Credit card business
(xvii) Money changing Business.
(xviii) Micro Credit
(xix) Rural Credit

The minimum capitalization norms are:

a. For permitted non-fund based activities: US$ 0.5 million, to be brought upfront.

b. For fund-based NBFCs

- **For FDI upto 51% - US$ 0.5 million to be brought upfront**
- **For FDI above 51% and upto 75% - US$ 5 million to be brought upfront**

- **For FDI above 75% and upto 100% - US$ 50 million out of which US$ 7.5 million is to be brought upfront and the balance within 24 months.**

c. Foreign investors can set up 100% operating subsidiaries without the condition to disinvest a minimum of 25% of its equity to Indian entities, subject to bringing in US$ 50 million as at b) (iii) above (without any restriction on number of operating subsidiaries without bringing in additional capital)

d. Joint Venture operating NBFCs that have 75% or less than 75% foreign investment will also be allowed to set up subsidiaries for undertaking other NBFC activities, subject to the subsidiaries also complying with the applicable minimum capital inflow i.e. (b)(i) and (b)(ii) above.

e. FDI in the NBFC sector is put on automatic route subject to compliance with guidelines of the Reserve Bank of India. RBI would issue appropriate guidelines in this regard.

f. FDI upto 26% is allowed in insurance on the automatic route, subject to obtaining a licence from the Insurance Regulatory Development Authority

2. Civil Aviation

Domestic Airlines

Any investment in this sector requires specific approval.

(i) FDI upto 40% is permitted in domestic airlines subject to no direct or indirect equity by foreign airlines

(ii) Upto 100% investment by NRIs /OCBs is allowed in domestic airlines.

Airports

Upto 100% FDI is allowed, with specific approvals necessary for FDI beyond 74%

3. Telecommunications

(i) In basic, cellular, paging and Value Added Services, and Global Mobile Personal Communications by Satellite, FDI is limited to 49% subject to grant of licence from Department of Telecommunications, besides lock-in period for transfer and addition of equity and other licence provisions.

(ii) No equity cap is applicable to manufacturing activities.

(iii) In ISPs with gateways, radio-paging and end-to-end bandwidth, FDI is permitted up to 74% with FDI, beyond 49% requiring government approval. These services would be subject to licensing and security requirements.

(iv) FDI up to 100% is allowed for the following activities in the telecom sector:

a) ISPs not providing gateways (both for satellite and submarine cables)

b) Infrastructure Providers providing dark fibre (IP category 1)

c) Electronic Mail

d) Voice Mail

- FDI up to 100% is allowed subject to the condition that such companies would divest 26% of their equity in favour of Indian public in 5 years, if these companies were listed in other parts of the world.
- The above services would be subject to licensing and security requirements, wherever required.
- Proposals for FDI beyond 49% shall be considered by FIPB on case to case basis

4. Petroleum

(a) Under the exploration policy FDI upto 100% is allowed for small fields through competitive bidding; upto 60% for unincorporated JV and upto 51% for incorporated JV with No Objection Certificate for medium size fields.

(b) For refining, FDI is permitted upto 26% (PSU holding of 26% and balance 48% public). In case of private Indian company, FDI is permitted upto 100%

(c) For petroleum products and pipeline sector, FDI is permitted upto 51%.

(d) FDI is permitted upto 74% in infrastructure related to marketing and marketing of petroleum products.

(e) 100% wholly owned subsidiary (WOS) is permitted for the purpose of market study and formulation of business plans.

(f) 100% wholly owned subsidiary is permitted for investment/financing.

(g) For actual trading and marketing, minimum 26% Indian equity is required to be brought in over 5 years.

All approvals are under the Specific Approval Route only.

5. Housing & Real Estate

No foreign investment is permitted in this sector, except for development of integrated townships and settlements where FDI upto 100% is permitted with prior Government approval.

However, NRIs/OCBs are allowed to invest in the following:

a. Development of serviced plots and construction of built up residential premises.
b. Investment in real estate covering construction of residential and commercial premises including business centres and offices.
c. Development of townships.
d. City and regional level urban infrastructure facilities, including both roads and bridges.
e. Investment in manufacture of building materials
f. Investment in participatory ventures in (a) to (e) above
g. Investment in housing finance institutions.

6. Coal and Lignite

i) Private Indian companies setting up or operating power projects as well as coal or lignite mines for captive consumption are allowed FDI upto 100%.

ii) 100% FDI is allowed for setting up coal processing plants subject to the condition that the company shall not do coal mining and shall not sell washed coal or sized coal from its coal processing plants in the open market and shall supply the washed sized coal to those parties who are supplying raw coal to coal processing plants for washing or sizing.

iii) FDI upto 74% is allowed for exploration or mining of coal or lignite for captive consumption.

In all the above cases, FDI is allowed upto 50% under the automatic route subject to the condition that such investment shall not exceed 49% of the equity of a PSU.

7. Venture Capital Fund (VCF) and Venture Capital Company (VCC)

An offshore venture capital company may contribute upto 100% of the capital of a domestic venture capital fund and may also set up a domestic asset management company to manage the fund. VCF and VCC are permitted upto 40% of the paid up corpus of the domestic unlisted companies. This ceiling would be subject to relevant equity investment limit in force in relation to industries reserved for the small-scale sector. A domestic VCF /VCC may not invest in excess of 5% of its paid up corpus, in any single venture.

8. Trading

Trading is permitted under automatic route with FDI upto 51% provided it is primarily for export activities, and the undertaking is a recognized export house/trading house/ super trading house, star trading house. However, under the FIPB route: -

100% FDI is permitted in case of trading companies for the following activities:

- Exports;
- Bulk imports will export /expanded warehouses sales;
- Cash and carry wholesale trading;
- Other import goods or services provided at least 75% is for procurement and sale of goods and services among the companies of the same group and for third party use or onward transfer / distribution/sales.

The following kinds of trading are also permitted, subject to provisions of EXIM policy.

- Companies for providing after sales services (that is not trading per se)
- Domestic trading of products of JVs is permitted at the wholesale level for such trading companies who wish to market manufactured products on behalf of their joint ventures in which they have equity participation in India.

- Trading of hi-tech items /items requiring specialized after sale service
- Trading of items for social sectors.
- Trading of hi-tech, medical and diagnostic items.
- Trading of items sourced from the small-scale sector under which, based on technology provided and laid down quality specifications, a company can market that item under its brand name.
- Domestic sourcing of products for exports.
- Test marketing of such items for which a company has approval for manufacture provided such test marketing facility will be for a period of two years, and investment in setting up manufacturing facilities commences simultaneously with test marketing.
- FDI up to 100% permitted for e-commerce activities subject to the condition that such companies would divest 26% of their equity in favour of the Indian public in five years, if these companies were listed in other parts of the world. Such companies would engage only in business to business (B2B) e-commerce and not in retail trading.

9. Investing Companies in Infrastructure /service sector.

In respect of companies in the infrastructure/service sector, where there is a prescribed cap for foreign investment, only the direct investment will be considered for the prescribed cap and foreign investment in an investing company will not be set off against this cap provided the foreign direct investment in such investing company does not exceed 49% and the management of the investing company is with the Indian owners. The automatic route is not available.

10. Atomic Energy

The following three activities are permitted to receive FDI/NRI/OCB investment through FIPB:

a. Mining and mineral separation.
b. Value addition per se to the products of (a) above.
c. Integrated activities (comprising of both (a) and (b) above.

The following FDI participation is permitted:

i. Upto 74% in both pure value addition and integrated projects.
ii. For pure value addition projects as well as integrated projects with value addition upto any intermediate stage, FDI is permitted upto 74% through joint venture companies with Central / State PSUs which equity holding of at least one PSU is not less than 26%
iii. In exceptional cases, FDI beyond 74% will be permitted subject to clearance of the Atomic Energy Commission before FIPB approval.

11. Drugs & Pharmaceuticals

FDI up to 100% is permitted on the automatic route for manufacture of drugs and pharmaceutical, provided the activity does not attract compulsory licensing or involve use of recombinant DNA technology, and specific cell / tissue targeted formulations.
FDI proposals for the manufacture of licensable drugs and pharmaceuticals and bulk drugs produced by recombinant DNA technology, and specific cell / tissue targeted formulations will require prior Government approval.

12. Roads & Highways, Ports and Harbours

FDI upto 100% under automatic route is permitted in projects for construction and maintenance of roads, highways, vehicular bridges, toll roads, vehicular tunnels, ports and harbours.

13. Hotels & Tourism

100% FDI is permissible in the sector.
The term hotels include restaurants, beach, resorts and other tourist complexes providing accommodation and/or catering and food facilities to tourists. Tourism related industry includes travel agencies, tour operating agencies and tourist transport agencies, units providing facilities for cultural, adventure and wild life experience to tourists, surface, air and water transport facilities to tourists, leisure, entertainment, amusement, sports, and health units for tourists and convention / Seminar units and organizations.

Automatic route is available upto 51% subject to the following parameters.

For foreign technology agreements, automatic approval is granted if

i. Upto 3% of the capital cost of the project is proposed to be paid for technical and consultancy services including fees for architects, design, supervision etc.

ii. Upto 3% of the net turnover is payable for franchising and marketing/publicity support fee, and

iii. Upto 10% of gross operating profit is payable for management fee, including incentive fee.

14. Mining

i. For exploration and mining of diamonds and precious stones FDI is allowed upto 74% under automatic route.

ii. For exploration and mining of gold and silver and minerals other than diamonds and precious stones, metallurgy and processing FDI is allowed upto 100% under automatic route.

15. Pollution Control and management

FDI upto 100% in manufacture of pollution control equipment and consultancy for integration of pollution control systems is permitted under automatic route.

16. Advertising and films

Automatic approval is available for the following:

i. Upto 100% FDI in advertising sector.

ii. Upto 100% FDI in film industry (i.e., film, financing, production, distribution, exhibition, marketing and associated activities relating to film industry), subject to the following:

- Companies with an established track record in films, TV, music, finance and insurance would be permitted.
- The company should have a minimum paid up capital of US$ 10 million if it is the single largest equity shareholder and at least US$ 5 million in the other cases.
- Minimum level of foreign equity investment would be US$ 2.5 million for the single largest equity shareholder and US$ 1 million in other cases.

- Debt equity ratio of not more than 1:1, i.e., domestic borrowings shall not exceed equity

Provisions of dividend balancing would apply.

In all other sectors/ activities, there is no upper limit on the foreign equity percentage or the requirement of specific approvals, in general. However, all proposals that do not qualify under the automatic route guidelines for reasons other than sector ceilings shall continue to be covered by the specific approval process.

17. Postal Services

FDI up to 100% is permitted in courier services with prior Government approval excluding distribution of letters, which is reserved exclusively for the state.

18. Mass Rapid Metro Transit System

FDI up to 100% is permitted on the automatic route in mass rapid transport system in all metros including associated real estate development.

19. Print Media

FDI in print media is allowed upto 26% of paid-up equity capital of Indian entities publishing periodicals and newspapers dealing with news and current affairs.

20. Defence Industry

The defence industry sector is opened to Indian private sector participation with FDI permitted upto 26%, both subject to licensing.

Annexure II List of Industries Reserved for the Public Sector.

- Arms and ammunition and allied items of defence equipment
- Defence aircraft and warships.
- Atomic Energy.
- Coal and lignite
- Mineral oils.
- Mining of iron ore, manganese ore, chrome ore, gypsum, sulphur, gold and diamond.
- Mining of copper, lead, zinc, tin, molybdenum and wolfram.
- Minerals specified in the Schedule to the Atomic Energy (Control of production and use) Order, 1953.
- Railway transport.

Annexure III List of Industries for which industrial licensing is compulsory

- Distillation and brewing of alcoholic drinks.
- Cigars and cigarettes of tobacco and manufactured tobacco substitutes.
- Electronic Aerospace and Defence equipment: all types.
- Industrial explosives including detonation fuses, safety fuses, gunpowder, nitrocellulose and matches.
- Hazardous chemicals.
- Drugs and Pharmaceuticals according to modified Drug Policy (issued in September, 1994).

Selective List of Forms required for various applications

Form	Description
FNC 1	Application for permission by non-residents/foreign companies for establishing a branch office.
EOU	Application Form for setting up units/private bonded warehouses in EPZ/EOU zone scheme.

FC/IL SIA	Application for approval for collaboration / technology transfer.
FC (GPR)	Proforma for information to be filed with the RBI for foreign investments covered under the automatic approval route.
Form ISD	Application form for permission to issue shares to non-residents.
QA-22	Form of undertaking to be completed by foreign companies / nationals for opening of a bank account in India.
RFN	Application for transfer of assets by foreigners returning from India.
TCD	Format of annual return to be submitted to RBI in all cases of foreign collaborations.
TS 1	Application form for transfer of shares by a non-resident to a resident in India.

Specimens of the initial application forms FNC1 (for setting up branch offices), EOU (for setting up export oriented units) and FC/IL SIA (for investments not falling under the automatic route) appear in the annexure to this guide.

4. Implementation

4.1 Business Structure

Based on initial evaluation of opportunities, a foreign enterprise may choose a limited presence in the form of a liaison office/branch office, or an investment presence in form of a trading or industrial venture. The sector limits and the proposed foreign holdings relating to the proposed activities will determine whether a specific approval is required and whether a local partner is compulsory.

As a result, foreign investments can either be as 100% wholly owned subsidiaries, or as joint venture companies that have some Indian shareholding. In some instances, as in case of the Coca Cola Company, initial approvals can be given for creating a 100% subsidiary, subject to undertaking to dilute 49% of the equity to Indian shareholders within five years. After much rallying, Coca Cola divested 49% of its equity in India to Indian shareholders through a private placement in February 2003. India became the first country of local presence in which Coca Cola Atlanta does not have 100% ownership.

Management Control

Based on the provisions of the Companies Act, shareholders can have five levels of management control:

1. Portfolio ventures (upto 25% holding), which offer no veto rights and reflect a 'passive' status
2. Minority ventures (26-49% holding), which give blocking powers over matters to be decided by special resolutions (which require 3:1 majority)
3. Consensus ventures (50% holding), giving blocking powers in all decisions

4. Majority ventures (51-74% holding), giving powers in all decisions except on matters requiring special resolutions
5. Controlling ventures (more than 75% holding), giving a sweeping hand in all affairs of the company, not different from a wholly owned subsidiary.

A shareholding of 75% can enable a shareholder group to even change the name, status and articles of the company and to allot shares on a preferential basis.

Besides shareholder rights which are exercised only in General body meetings, foreign investors can, through provisions in the articles of the company and in the joint venture agreements, have rights for nominating Directors to the Board of the company, which provide for a greater say in the management of the business.

With progressive liberalization, 100% ownership is now possible in all but a few 'sensitive' industries, and so ownership and management control are becoming less serious issues in foreign investments. Therefore, the rationale for a joint venture company is increasingly becoming an issue of choice and investment strategy instead of being stipulated **by investment regulations.**

Joint Venture Partners: what goes wrong?

Several high-profile joint ventures in India did not make it, and ended in a sell out/ exit of one of the venture partners. These include: **Procter** & **Gamble** (Godrej Soaps), **Unisys** (Tata), **General Electric** (Godrej& Boyce), **Ricoh** (R PGoenka), Lufthansa (VK Modi), **Xerox** (BK Modi) and **Acer** (Wipro). Ford and Mahindra & Mahindra, Kinetic and Honda, LML and Piaggio

While there would be several specific reasons, the fundamental causes for calling off joint venture partnerships have been:

- Difference in management culture and business policy
- Disagreement over core issues and strategy
- Change of international priorities of parent company
- Overestimation of partners' strengths and market potential
- Complexities of the Indian market
- Inability of partners to bring in requisite financial resources
- Deadlocks arising from inadequate management control
- Lack of transparency and undisclosed personal gains from the venture

Exiting a joint venture is not always simple. **The absence of a clearly defined exit route in the joint venture agreement and in the articles of the company has, perhaps, been the major failing in joint venture preparations in the past.**

Foreign investment regulations discourage multiple ventures in the same or allied fields in India: they require a **No Objection Certificate by** an existing **or a former Indian partner** in case a foreign company seeks to establish a new venture/ technical collaboration or even trademark licensing agreement in India. Such clearances are not forthcoming for several business and personal reasons.

4.2 Company Incorporation

Incorporating the company involves the following steps, which can take about six to eight weeks.

1. Applying to the Registrar of Companies for approval of a name. Selection of names must be in accordance with the guidelines, and three choices are required to be given for clearance
2. Filing the Memorandum and Articles of Association giving the main objects, incidental objects, etc and the authorised share capital of the company, and the names and particulars of the subscribers to the memorandum- minimum 2 in case of a private company, and 7 in case of a public company
3. In case a foreign company is a subscriber (as will be for joint ventures and subsidiaries) the following principal documents are needed to be authenticated by the Indian Embassy in the country of origin:
   - Certified/notarised English translation of parent company's registration, memorandum and articles of association
   - Certified/notarised English translations of board resolutions required to be passed to subscribe to the capital of the Indian company, appointment of representative directors and signatories
   - Authentication of authorised signatures of the parent company signatories
   - Powers of attorney to Indian authorised signatory if any, on behalf of the parent company.
4. Based on the above documents, the Certificate of Incorporation is issued to the Indian Company, which may have subscription to its initial capital by the foreign investor/company.

Private and Public Companies

Private Company

A private company is a company formed by two or more members (but not more than fifty), which has articles-

- Restricting the right to transfer its shares, if any
- Limiting the member strength to fifty- excluding employees, employee-members, after ceasing to be employees
- Prohibiting invitation to the public to subscribe for shares and debentures of the company.

Public Company

A Public company is one that is not a private company and is

- Promoted by a minimum of seven members
- Does not restrict the transfer of its shares
- Invites the public to subscribe to the shares and debentures of the company.

Private companies are exempt from several provisions of the Companies Act widely applicable to public companies, mainly relating to the following:

- Issue of type of share capital, voting rights, shares disproportionate to holdings, etc
- Financial assistance to purchase its own shares
- Remuneration payable to managerial personnel
- Powers of the Board of Directors
- Loans to Directors.

Shareholders must check the Memorandum and Articles of the implementing Joint Venture Company thoroughly and ascertain that:

- The Articles embody all the mutual rights of the joint venture partners provided in the joint venture agreements; otherwise other shareholders and the company is not bound by the agreement conditions
- Eligibility of a partner to nominate directors must be strictly in relation to actual shareholding at any point of time, or as

provided by the JV agreement; other wise disproportionate control may ensue in the venture
- Blocking and special quorum rights of partners on important matters are specified in the articles
- Provisions are made for sending and providing sufficient notice of all meetings to non-resident shareholders
- Exit procedures, sale and transfer rights of shares for under specific circumstances are provided

Foreign entities must seek detailed and adequate explanation for various unfamiliar clauses in the Articles before signing or accepting them.

4.3 Downstream Approvals

Depending on the activities, the following downstream local clearances/permissions are required, especially for setting up industrial/manufacturing ventures:

1. Industrial Licensing - if the intended products require compulsory licensing, applications are to be made on form IL to the Secretariat of Industrial Approvals (see investment policy section) - applications may be prepared by either the Indian partner or by the foreign company
2. Import Export Code Number: issued by the RBI for carrying out import export transactions of capital goods and raw materials, etc.
3. Local and Central Sales Tax registration number: issued by the local state government, Department of Revenue, required for all sales within the state and for interstate sales
4. Pollution Clearance: from the State Pollution Control Board in the state the unit is proposed to be located in large projects, the Central Pollution Control Board is also involved in the clearance process. Pollution clearance is a serious stage in the implementation of a project and may also be influenced by environmental activists and NGOs in the vicinity

5. Land allotment for industrial plot: issued by the State Industrial Development Corporation or Development Authority concerned. Provisional letters are issued in approved industrial areas, subject to final allotment based on sanction of building plans prepared by a qualified architect, pollution clearance and certification from the Inspectorate of Factories for working conditions like safety, hygiene, lighting and other amenity standards
6. Electricity/Power connection: Approvals for connected loads and distribution of load are given by the State Electricity Board or a private power distribution company allotted the territory covering the factory site. The allotment process takes from 2 – 6 months depending on the efficiency of the local authorities
7. Attestation of list of imported capital goods: issued by the Director General of Foreign Trade or Collectorate of Customs and Excise, Ministry of Commerce
8. Registration under the Factories Act: issued by the Inspectorate of Factories, which institutes norms for worker safety and general working conditions in factories
9. Product specific clearances in certain industries such as drugs, cosmetics, food products, mining, etc from respective authorities.

On an average, the above processes could take anywhere between 12 months to 24 months before commencement of commercial production.

4.4 Corporate Compliance

Every company, whether Indian or foreign, is required to comply with certain formalities under the Company's Act. For Indian companies the following aspects are important:

Appointment of Directors:

- A public company should have a minimum of three
- A private company should have at least two directors
- A director need not own any qualifying shares unless specified by the Articles of Association.
- Public companies are required to retire at least one-third of the directors every year, with their reappointment or replacement at an Annual General Meeting.

Foreign nationals can be appointed non-executive directors without prior Government approval and they are not required to have any shareholding.

Every public company, and private company, which is a subsidiary of a public company, with a paid-up capital of Rs.50 million or more, is required to appoint a full-time or managing director. In addition, every company with a paid-up share capital of Rs.5 million or more has to appoint a full-time qualified company secretary.

The new Corporate Governance guidelines also require all publicly traded companies to have at least half the strength of the Board of Directors comprised by **non-executive directors and independent directors**, and the constitution of an Audit Committee of Directors to report on the correctness of the financial statements of the company.

Managerial Remuneration:

The remuneration of managerial personnel is linked to the authorised capital of a company as well as its profits. Managerial remuneration (compensation paid to the Managing and full time Directors of a company) is restricted to 10% of net profit, collectively, and 5% in case of a sole beneficiary. Higher remuneration requires approval of the

Company Law Board (and is normally given for a limited duration).

Start up operations, especially when they involve expatriates, do not earn sufficient profits to meet the requirement and therefore must invariably refers the employment terms of the Director for the Company Law Board's approval.

Meetings:

- Statutory Meetings are required to be held by all public companies, and private companies in certain circumstances, on commencement of business.
- Annual General Meetings are held by all companies at least once every fifteen months.
- Extraordinary General Meetings may be held at the request of members holding at least 10% of voting power.
- A Board of Directors Meeting should be held once every quarter and additional meetings should be held as necessary.

Board Resolutions:

The two kinds of resolutions passed at General Meetings are:

- Ordinary resolutions, where a simple majority is essential.
- Special resolutions, where a three- fourths majority is essential.

Crucial issues like further issue of capital, preferential allotment of shares, conversion from a private to a public company, an amendment to the Memorandum & Articles of Association or conversion of debt to equity require special resolutions.

Dividends:

Companies are allowed to pay dividends only after providing for depreciation on fixed assets in the manner prescribed by the Act. In addition, the Act prescribes a minimum retention of profits into Reserves before payment of dividend, unless dividends are paid out of company's reserves. Dividends can be recommended only by the Board of Directors and require approval at the Shareholders' meeting.

Dividends must be paid out within 42 days of being declared.

Accounting and Reporting

Statutory registers, records and books of account need to be maintained at the registered office.

The following statements are required to be furnished at every AGM, with the Profit and Loss Account and Balance Sheets required being presented/published in a prescribed format:

- The company's financial statements comprising a balance sheet and a profit and account (income statement) for the accounting period.
- The Auditors' and the Board of Directors' reports.

Filing of Returns:

The fiscal year in India is from 1st April to 31st March. All Companies are required to file the annual return, balance sheet and profit and loss account, the auditor's and Board of Director's reports and charges, to the Registrar of Companies.

All listed companies have to publish half-yearly financial statements - at the end of September and end of March.

Audit

Every company has to get its accounts audited by a member of the Association of Chartered Accountants of India. The auditor of a company reports to the shareholders on every balance sheet and profit and loss account and that is presented before the company in the Annual General Meeting during his tenure of office. Besides internal audit, tax audits are mandatory for companies exceeding a prescribed turnover.

Corporate Governance

India's Companies Act specifies obligatory Corporate Governance guidelines have been specified for all public listed companies, with the following important provisions:

1. Composition of the Board of Directors: At least 50% of the board strength shall consist of non- Executive Directors. Independent Directors – who have no pecuniary interest outside their director's remuneration or material transactions with the company or its subsidiaries or its promoters that may influence their judgement- must form at least one-third of a Board's strength where the Chairman is a non-Executive Director, and half its strength where the Chairman is an Executive Director.
2. Audit Committee: Every company shall have an audit committee of at least three members, all being non-executive Directors, at least two being independent and at least one possessing financial and accounting knowledge. The committee must meet at least thrice a year and perform its role (specified in detail in the guidelines) to overview the company's financial reporting process and

ensure the correctness and credibility of its financial statement.

3. The company must attach a Management Discussion & Analysis Report with the Annual Report to the shareholders covering important matters on the sector outlook, risks and other internal aspects of the company.
4. The Annual Report shall contain a corporate governance section with a detailed compliance report on the guidelines. And also obtain a compliance certificate from statutory auditors.

Competition Regulations

Under India's competition legislation, companies may not resort to the following practices:

Agreements that may restrict competition: Agreements may be horizontal (agreements of collusion amongst competitors), or vertical (agreements between buyer/seller firms).

Abuse of dominance: practices like quantity restrictions, predatory pricing to eliminate competitors and marketing below costs to drive out competitors in order to recover market shares, etc. In this regard, predatory pricing will be considered adverse only if used by a dominant undertaking and dealt with on the basis of rule *of reason*.

Mergers and combinations among enterprises: a system of prior notification for mergers beyond a threshold limit: asset values exceeding Rs 5 bn for the merged entity, and/ or Rs 20 bn for the parent group holding the merged entity.

Repatriation/Remittance of Profits and Capital

The repatriation of capital and profits of foreign shareholders is possible after deduction of applicable withholding taxes and other deductions, if any. The following procedures apply in this regard:

- Application for repatriation of capital invested in India should be made to the Reserve Bank through an authorised dealer, together with following information/documents
- Whether any undertaking was given at any time to the Government of India/Reserve Bank not to seek repatriation facilities
- Documentary evidence in support of the investment proceeds
- Whether the investor (in case of individual) was ever resident in India; if so, particulars of foreign exchange availed of at the time of leaving India and thereafter
- No Objection certificate/Clearance certificate from the Indian Income Tax Authorities
- A certificate from a chartered accountant or the concerned company's secretary confirming that necessary share transfer forms duly completed have been received by the transferee or his agent and/or lodged with the company for registration in favour of the transfers of bulk holdings.

4.5 Public Issues

Companies are allowed to access capital markets in accordance with the regulatory guidelines issued by the Securities Exchange Board of India, which regulates all matters at India's capital markets.

Listing of Public Companies –

- Companies having a minimum issued capital of Rs.30 million can apply to the Stock exchanges for listing– individual stock exchanges have their own higher listing requirements (Mumbai Stock Exchange – Rs.100 million)
- Smaller companies with minimum capital of Rs.3 million can seek listing on the Over the Counter Stock Exchange of India (OTCEI)
- For companies with issued capital between Rs.30 million and Rs.250 million, the option also exists to seek listing on the OTCEI.

In order to meet listing requirements on a stock exchange, the minimum issued capital of a company needs to be Rs.30 million. Some exchanges like Mumbai have their own cut off listing requirements (Rs.100 million).

Public Issue Guidelines are available in the SEBI guidelines and also on the website www.sebi.gov.in

4.6 Taking over a company

The *SEBI (Substantial Acquisition of Shares and Takeovers) Regulations* Act provides for takeovers of Indian companies. Bids can be mounted either by an individual, an Indian company, or a foreign company (which has received or expects to receive permissions to invest in India), by itself or through its merchant bankers/ or agents.

A few salient features are listed below:

- An acquirer holding more than 5% shares in any company, or on acquiring more than 5% shares in a company, needs to disclose his aggregate holding to the company and to the exchanges where the shares are listed.

- Every person holding more than 15% of a company's shares (but below 75% of its voting stock) needs to make half yearly disclosures to the stock exchanges.
- A public announcement, with a minimum offer price to all shareholders is necessary, within four working days of entering into an agreement for acquisitions of shares or voting rights.
- The offer should be verified by a Merchant Banker and contain essential information as stipulated under the guidelines.
- Minimum offer prices are determined based on negotiated process and the stock price averaged over 6 months prior to the announcement (details set out in the regulations).
- A minimum aggregate of 20% of the total shareholding shall be acquired, and the post acquisition public holding shall not reduce below 20% of the voting stock of the company.
- Provisions for competitive offers, revision of offers and withdrawal of offers exist.

For further details, please refer to www.sebi.gov.in

4.7 Stock Option Plans and share buybacks

Companies in certain knowledge-based industries such as software, biotechnology and pharmaceuticals, have been allowed to issue **Employee Stock Options (ESOPs**) at a discount to market rate, to all or a certain group of employees, in keeping with specified guidelines. ESOPs can also be offered out of the overseas issues (GDR/ADRs) of a company's securities.

A company may also buy-back some or all its shares outstanding in the market through:

- Through private offers to existing shareholders on a proportionate basis
- Repurchasing securities issued earlier to employees pursuant to a stock option or sweat equity

Buyback of securities requires a special resolution at a shareholders meeting i.e. a three-fourths majority of those present voting in favour of the resolution.

5. Running the Business

5.1 Premises

Companies, including subsidiaries of foreign companies are allowed to rent/ acquire property for purposes relating to their approved investment activities in India.

Industrial Locations

Locating manufacturing activities often attract local zoning regulations, and in many cases, require the siting of industrial activities in industrial areas allotted by the state's Industrial Development Corporation, according to a master plan for the state. Quite often, these areas are outside the urban limits of cities, and lack in modern business infrastructure. It is common for businesses to be headquartered in a city, with manufacturing operations within driving distance from the city.

At times, industrial land may not be readily available to meet the specific requirements of investors, in which case agriculture or other land needs to be converted for industrial use. This involves a complicated process of converting land use, and can take some months.

Considerations

Property purchases attracts stamp duties of between 5% and 12%, depending on the local state laws, and property taxes of about 2% of the assessable value. There is a huge grey market in private urban properties - sellers and buyers both declare a lower official value (even as low as 25% of transacted value) in order to escape the incidence of stiff transfer charges/stamp duties, capital gains taxes and mandatory income tax clearances, all of which complicate matters for foreign buyers.

Commercial locations

Commercial locations are easier to negotiate than industrial locations.
A rising demand for large and international quality office premises especially in metros has resulted in the development of planned satellite townships at the outskirts of cities, offering buildings with huge spaces, incorporating the latest designs and construction materials. Gurgaon, bordering Delhi, and Bandra-Kurla in the outskirts of Mumbai are home to modern swanky glass buildings, and building a skyline on the lines of international business cities. Many of the large and high-profile foreign companies have their headquarters in these areas.

Several international realty agents are active in India on the property market.

5.2 Personnel

The availability of skilled and suitable personnel largely depends on the industry concerned. One of India's advantages as a business location is the availability of a large base of skilled manpower in industry and service sectors. This advantage is most visible in knowledge-based sectors such as information technology, medicine and pharmaceuticals. Conversance in English is an additional advantage in services, marketing and communication- oriented industries, especially in the IT-enabled service sector.

However, the assumption of India being a low-cost location within Asia is not always correct: Indian costs in service sectors, marketing and financial professions are often higher than many Asian countries. Labour costs too, are low only in nominal value, but adjusting for productivity, Indian manufacturing wages are higher than many Asian countries. Trade unionism and political interference have a considerable influence on work-force rationalization, layoffs, closure and restructuring.

Finding personnel for start-ups is most conveniently done through manpower placement firms and headhunters, and several international firms have a presence in India.

Outsourcing: Increasingly, several functions such as payroll, public relations and advertising, even customer management are being outsourced in India. As this attracts the provisions of contract labour regulations, the scope and nature of contract employments is being redefined. With major changes expected in the Contract Labour Act, outsourcing will only increase in the future, making steady and permanent jobs a distant memory from the past.

Layoffs: Under the new regulations, industries having up to 300 workmen employees need not seek prior approval of the

government (Labour Commissioner) for closure of business and layoff of workers, provided they pay a stipulated compensation determined by the years in service for each workman.

Appointment of Expatriates

Foreign nationals are allowed, in principle, to be employed in India either on a short duration or in regular employment on a non-permanent basis, for periods usually upto three years.

The basic requirements are:
a) A valid business visa/working permit
b) Prior approval by the Reserve Bank of India, for repatriation facilities.
c) Permission from the Ministry of Home Affairs, for extended stay in India (exceeding three months)
d) Permission from the Dept of Company Affairs for appointment of an Expatriate as Whole time Director if he was not resident in India during the past twelve months
e) Clearance from the Dept of Company Affairs for managerial remuneration to the Managing or Whole time Director, in excess of specified norms

Foreign nationals in regular employment of Indian Companies (including joint ventures) can remit upto 75% of their monthly earnings abroad to meet their overseas expenses or maintain the family etc, after payment of any taxes in India. Retirement facilities to foreigners allow capital repatriation upto Rs 1 million, besides all savings generated from bonafide income, without any restrictions.

Appointment of expatriate as Director

Special conditions govern the appointment of a foreign national as the Managing Director or whole time Director of

a company. Company Law Board approval is necessary in case of a public limited company or a private company which is a subsidiary of a public company, in the following cases:

- Where the remuneration exceeds Rs. 2,00,000 per month, which would often be the case for expatriates;
- Where a person who has not resided in India for a period of twelve months preceding the appointment as a managing or whole time Director

Because of these regulations, expatriates are often designated as CEO or Country Manager, rather than Director, at least for the first year, to qualify for residential criterion.5.3 Labour Laws

India has an extensively regulated system for protecting the interests of industrial workers, and in many Government-controlled sectors like banking and infrastructure. Labour laws fall under the following groups, governed by several Acts:

The Industrial Disputes Act governs the conduct of industrial relations and provides the framework for fair and just settlement of disputes by negotiation, arbitration, conciliation, compromise or adjudication.

The Trade Unions Act provides for the registration of trade unions, to manage industrial relations on behalf of the workers. Collective bargaining, conciliation, arbitration and adjudication usually negotiate wages in the organised sector.

Membership of a trade union is not obligatory, but in large factories/ establishments, the Govt may stipulate the formation of a union as the representative for any industrial relations matters. Most trade unions are connected with a political party, and the leading political parties sponsor trade union wings.

The Equal Remuneration Act provides for payment of equal remuneration to men and women workers for the same work and prevents discrimination against women in matters of recruitment and also in relation to matters such as promotion, training or transfer.

The Minimum Wages Act empowers the Government to fix minimum wages for employees working in specified employment categories, especially in industry. It provides for review and revision of minimum wages already fixed after suitable intervals not exceeding five years. India's minimum wages range between Rs. 1500and 3000 per month depending on the location and skill levels, but are very low by the standards of Europe and other developed economies.

The Payment of Bonus Act provides for a minimum bonus of 8.33% of salary, and a maximum of 20 % of the annual income. For bonus calculations, the upper limit of salary is fixed at Rs. 3.500 per month (even if the salary is higher, say Rs 5,500). All establishments employing twenty or more persons even for one day during a year are required to pay bonus. New units are exempted till they start making profits or for five years of operation, whichever comes first.

The Payment of Gratuity Act provides for payment of gratuity to employees having completed five years service, at the rate of 15 days' salary for each completed year of service, payable at the time of retirement/ settlement, and tax-free upto Rs. 350,000. Every establishment having more than ten employees is required to register under this Act, within five years of being set up.

The Employees Provident Fund and Miscellaneous Provisions Act provides for the retirement benefits in the form of provident fund, family pension and deposit-linked insurance to employees. Companies employing more than 20 persons are

covered by the Act, and employee and employer are required to contribute a minimum of 10% of the basic salary to the regional Employee Provident Fund; these contributions attract tax exemptions/concessions.

The Employees State Insurance Act provides for medical care benefits in case of sickness, maternity, employment injury and pension for dependants in the event of the death through accidents at the workplace. The Act specifies a deposit of 6.5% of the salary, of which 1.75% is to be contributed by the employee, the rest by the employer, and applies to all employees with salaries below Rs 6500 per month under this Act.

The Maternity Benefit Act regulates the provision of maternity and other benefits to women employees for a certain period before and after childbirth. A woman employee is entitled to post natal leave of six weeks, with full pay.

The Factories Act is the principal legislation for regulating various aspects relating to safety, health and welfare of workers employed in factories. It forbids employment of children less than 14 years of age in any factory, prescribes a 48-hours limit per week for adult workers, and sets the minimum standards of lighting, ventilation, safety and welfare services, which employers must provide in their factories.

The Child Labour Act prohibits employment of children in certain hazardous occupations and processes and regulates their employment in some other areas. Legislative provisions have also been made in various laws to protect children from exploitation at work and to improve their working conditions.

The Workmen's Compensation Act provides for payment of compensation to workmen and their dependants in case of injury and accident (including certain occupational disease)

arising out of and in the course of employment and resulting in disablement or death. Compensation is determined on the basis of loss of earning ability created by the accident, and

The Contract Labour Act regulates establishments and contractors employing at least twenty workmen as contract labour on any day during the year, and provides for the welfare and health of contract labour involved in any activities that are not intermittent or casual in nature. All contract workmen employed for more than 150 days during a year, are entitled to wages and other benefits on the same lines and terms as regular employees, and are to be absorbed as regular employees of the establishment.

5.3 Employment Contracts

Except unionised cadres (factory workers, etc.) services and commercial positions are non-unionised and usually governed by negotiated employment contracts. Individual appointments provide for some flexibility in remuneration, designation and work scope; however, they cannot bind the employee's right to terminate employment or to execute a bond, and in case of women, must provide gender-related rights such as special fund maternity leave and exemption from night shift duties.

Employment contracts are normally terminable with one-to-three months notice, and carry the usual clauses for protection of:

- The company's proprietary information
- Restrict unionism
- Insurgent activity and insubordination.

Disputes between the employee and employer concerning misdemeanour, malfeasance, theft and piracy of official secrets, intellectual property and restricting basic rights through

coercion, harassment or prejudice, are settled in the Civil Courts, while non-payment of wages and dues are addressed by the Labour Courts.

5.4 Marketing and Distribution

India has a well-established distribution network in most parts of the country, especially for non-perishable products. The network consists of C & F agents, stockist/ warehouses, regional distributors, wholesalers, and retail sellers. It is common to find many companies in unrelated/non conflicting product lines sharing the network in a territory. The **retail network consists of more than 3.5 million outlets** all over India.

Import Agent

With the opening up of imports of personal care products since 1999, a new tier – Importer/ Import Agent- has been created in the market structure. The creation of this tier is partly on account of regulations that prohibit foreign investment in India in domestic distribution or retail, except for high technology products. As a result, while market access was opened up, the distribution structure of imported goods has been with Indian entities. In some cases, a large distributor may double up as the national importer, on behalf of one or more international companies.

The most essential role of the importer is to comply with the import regulations dealing with packaged consumer goods, which involve labelling requirements and the declaration of the **maximum retail price** on each pack. Invariably, this is done physically after the consignments arrive into a customs-bonded area before clearance. Packs should also

contain the name of the importer and any other mandatory information under Indian laws.

Direct Marketing

Direct Marketing has become big business in India, touching Rs 10 bn in less than four years of its existence, and has grown by more than 40% annually and employing more than 1 million people, mostly women… Led by companies like Amway, Oriflame, Avon and Tupperware, the industry offers hope of meaningful self-employment to millions of young Indians, and has brought more respectability to the door-salesman through discipline, code of conduct and training. The hottest categories in the portfolio of most direct selling companies are: dietary supplements, home care and personal care products, all selling on account of the increasing demand for personalised and tailored products.

Organized Retail

India has a highly fragmented retail industry: the highest density of retail outlets in the world (5.55 per 1000) but the lowest per capita retail space in the world (2 sqft/1000). Organised retail accounts for less than Rs 10 bn at present, with less than 0.5 million square metres retailing space all over India. However, more than 7 million square metres are under construction in the top metro cities.

Large format retail outlets are virtually absent in the cosmetics sector in India. exclusive outlets and chain stores. However, international presence in retail is absent: business regulations do not allow foreign investment in retail trade. However, recently, foreign investment has been allowed in cash and carry wholesale activities, which

is considered a prelude to the eventual opening up of the retail industry as well.

Promotion Spends

At the all-India level, the total advertising and marketing spends by India's 200 largest spenders is estimated to be Rs. 80 bn. Advertising spends at Rs. 39 bn, against a sale of Rs 1675 bn, represent an average 2.3% of sales, while market spends, at Rs. 42 bn on sales of Rs.1900 bn, represent 2.2%.

E-commerce

It has been forecasted that India will have 30 million Internet users by 2004 and that the potential Internet market will reach 47 million households in 2005. With improved bandwidth, marketers consider the Web to be a successful niche medium for several products and project an e-business turnover of US$ 4 bn by 2005.

However, several lacunae exist in respect of e-commerce in India, while foolproof systems for payment verification and security of transactions are yet to be implemented commercially.

5.5 Consumer Profile

India is a unique market on account of its diversity in age, income, and urban-rural demographics.

Age

Compared with several advanced countries, where the overall population is aging, India is a very young nation: 85% of its

population is below the age of 45, and 55% of its people are below 25 years of age. Young adults, the group between 20 and 35 years, account for almost one-fourth of India's consumption base.

Table 5.1 Age distribution of Indian population (Millions)

Year	Kids 0-4	Children 5-14	Adolescents 15-19	Young adults 20-34	Mid aged 35-54	Aged 55 +	Total
1996	119.5	233.2	90.7	224	178.1	88.7	934.2
2001	108.5	239.1	109.0	246.8	207.3	101.7	1012.4
2006	113.5	221.2	122.4	279.1	239.2	118.7	1094.1

Source: Statistical Outline of India, 2000-01.

The projected increase in the economically active population of young Indians -especially the 24-45 age group-holds the keys to India's prosperity and its economic potential over the next twenty years, and is expected to unlock a new wave of consumer demand provided the current trend of economic liberalization continues and generates continued investment and trade opportunities in the economy.

Income

According to the NCAER, there are five classes of consumer households, ranging from the destitute to the highly affluent, which differ considerably in their consumption behaviour and ownership patterns across various categories of goods. These classes exist both in urban as well as rural households, and consumption trends may differ significantly between similar income households in urban and rural areas.

The target market segments for aspiration and lifestyle goods are the 57 million homes (250 million people) representing the consuming classes and the rich. Of these, only 2 million homes, representing some 10 million people have lifestyles matching average European levels and are the affluent class *of people, who are a market for all world-class products.*

Table 5.2 Structure of the Indian Consumer Market (mn homes)

Consumer Classes (Annual income Rs)	1996	2001	2007	Change
The rich (Rs.215, 000 and more)	1.2	2.0	6.2	416%
The Consuming Class (Rs. 45-215,000)	32.5	54.6	90.9	179%
The Climbers (Rs. 22-45, 000)	54.1	71.6	74.1	37%
The Aspirants (Rs.16-22, 000)	44	28.1	15.3	-65%
The Destitute (below Rs. 16,000)	33	23.4	12.8	-61%
Total	164.8	180.7	199.2	21%

Source: National Council for Applied Economic Research (NCAER)

- **Regional distribution**

Income distribution has significant regional polarities in India. The north, having nearly 30% of India's population, has more than 36% of all high income homes, while the East, having close to 24% of the population, has only 17.3% of high income homes. Agriculture and commerce have been considered important growth engines, and the East has lagged in both for some decades.

- **Urban-rural distribution**

Nearly 49 million households, comprising 32.3% of India's 172 million dwelling units, live in urban areas; the

remaining 123 million homes are in rural areas. Nearly 47% of urban households are in middle and higher income strata, and only 17% of rural households have similar income levels.

Table 5.3 Income Distribution (per cent)

Annual income (Rs.)	*Income class*	*Urban*	*Rural*	*Total*
<= 35. 000	L	19.0	47.9	39.7
35. 001 – 70. 000	LM	33.8	34.8	34.5
70.001 – 105.000	M	22.6	10.4	13.9
105.001 – 140.000	UM	12.2	3.9	6.2
> 140.000	H	12.5	3.0	5.7
	Total	100.0	100.0	100.0
	Total House-holds (`000)	49.111	122.810	171.921

NCAER, 2002

Occupation levels

In all, nearly 117 million households (61.5% of the national base) earn their livelihood primarily from daily wages or agriculture; 90 million of these are in rural areas. Nearly 32 million households are headed by regularly employed (salaried) income earners; close to 20 million are in urban areas. Self-employed professionals, artisans and businesspersons including traders account for 18%, of which nearly 8% are petty shopkeepers. Professionals and businesspersons together represent a base of 4.4 million households only.

5.6 Selling to Government

India's policies on government procurement are based on the Government's General Financial Rules and guidelines established by the Department of Supply and under. Government procurement is carried out by inviting tenders. Tenders can be either open tenders or limited tenders. Limited tenders are issued to selected suppliers that are already known and registered with the issuing organisation or Ministry.

In some cases, a price preference is given to 'indigenous equipment' suppliers, or for public sector enterprises. For example, in the shipping sector, price preferences of upto 30% apply to Indian bidders on procurement contracts.

5.7 Business Laws

Foreign investors would need to understand the legal provisions of doing business in India, especially in relation to the following laws among others:

- Company Law – The Companies Act 1956
- Exchange Control Laws: Foreign Exchange Management Act – FEMA 1999
- Income Tax Act
- Customs Act and Central Excise Acts
- Monopolies and Restrictive Trade Practices Act, MRTP Act 1969
- Intellectual Property Laws: Trade Marks Act, Copyright Act, Industrial Designs Act, Patent Act, etc.

- Arbitration and Conciliation Ordinance 1996
- Indian Contract Act
- Sale of Goods Act
- Consumer Protection Act, 1986
- Labour laws- The Minimum Wages Act, 1948, The Payment of Bonus Act, 1965, The Payment of Gratuity Act, 1965, The Employees' Provident Fund Act and The Employees' State Insurance Act.
- Factories Act, 1948

Intellectual Property Protection

India's acceptance of the Agreement on Trade Related aspects of Intellectual Property Rights **(TRIPS)** has resulted in new legislations in respect of 'Geographical Indications of Goods' and 'Integrated Circuits and Industrial Secrets', besides effecting significant changes in existing laws on Patents, Trademarks and Copyrights.

While new laws on Trademarks, Geographical Indications and Copyrights have been framed without any controversy and in harmony with prevailing international practices, the issue of Patents has attracted enormous controversy and divided opinions within the country, despite a new Patents Act coming into force in 1999.

Patents

The Indian Patent Act 1970, had major deviations from patent protection in other (Western countries), especially in the following respects:

- Plants, animals and biological processes- especially genetically engineered species are not patentable.
- Product patents are not allowed in case of food, drugs, medicines and a few specified chemicals, unlike in several

other countries. Only process patents are allowed in these areas.

- Patent period is shorter – 14 years for products, and 7 years for processes relating to food, drugs, medicines and specified chemicals, unlike the 20 year protection given in several other countries

In 1999, India moved the Patents (Amendments) Act to include the major provisions of the TRIPS agreement, albeit with a few important changes, which too have been disputed by the US.

For details, please refer to the respective Acts.

5.8 Dispute Settlement

Settlement of business disputes can be through the mainstream court process or through the alternative process of arbitration and conciliation. However, some disputes can be resolved only through the mainstream judicial process in courts. The legal machinery can be painfully slow, and verdicts in civil suits can take several years. There are more than ten million cases pending in Indian courts, and there is a serious shortage of judges. Therefore, the best course of action for expeditious settlement is to settle disagreements by negotiations.

Arbitration is a legally recognised dispute settlement mechanism in India, and is embodied in the Arbitration and Conciliation Ordinance, 1996 which covers domestic as well as international arbitration and the enforcement of foreign Awards. The Act can be invoked if there is an explicit arbitration clause or a separate agreement between parties to refer differences to arbitration.

Arbitration can be provided through the following channels:

- Arbitration Council of India
- Joint Business Councils/Joint Chambers of Commerce
- Trade Commission of the respective country
- International Chambers of Commerce.

Conciliation as a process for settlement of disputes has been introduced for the fist time and integrated with arbitration, instead of being a mutually exclusive option. The role of the Arbitral Tribunals is expanded to encourage settlement by mediation or conciliation, even during arbitral proceedings.

International Commercial Arbitration

The enforcement in India of foreign awards – against proof/evidence of such awards has been included in the Act. Arbitration awards are final and binding on parties, subject to set time limits for responsive action such as application correction/interpretation, setting aside the award. India has accepted the UNCITRAL model law on International Commercial Arbitration, to bring greater uniformity between its law and needs of international arbitration.

The Arbitration Ordinance provides for the following important clauses:

- Arbitrator can be of any nationality unless otherwise agreed by the parties
- Indian Evidence Act will not bind arbitration.

6. Taxation

India has a range of taxes structure covering business income, capital gains, wealth formation and trade/ commercial transactions. India has the highest tariff structures in Asia, especially on imports. However, because taxes account for 66% of the Govt.'s revenues, the scope for any drastic reduction in tariffs and tax rates is rather limited.

Indian taxes can be grouped in two categories:
Direct taxes: Income tax, Wealth tax and Gift tax, applying on income
Indirect taxes: Customs duties, Excise duty, Sales tax, Service tax, Octroi/entry tax, applying on commercial transactions

The Central Government levies all direct taxes and some indirect taxes.
The States Governments levy local taxes such as land revenue and municipal taxes (property tax, octroi/entry tax and local sales tax)

6.1 Taxation of Business

Indian tax laws distinguish between domestic and foreign companies in administering tax rates:

- Indian Companies are taxed on their worldwide income
- Foreign companies are taxed only on the income that arises from Indian operations.

On royalties and fees for technical services, interest on foreign currency loans, dividend and income from specified on mutual funds, tax is levied on the gross income.

Table 6.1 Corporate Tax Rates

	Domestic Company	Foreign Company
Tax Year	April 1st to March 31st	April 1st to March 31st
Due Date for Filing Tax Returns	October 31st	October 31st
Rate of Tax (%)		
• Income	35.875(35% Plus 2.5% surcharge	41% (40% plus 2.5% surcharge)
• Long term capital gains	20.5%(10.25% in case of gain on listed shares without indexation benefits)	20.5%(10.25% in case of gain on listed shares without indexation benefits)
• Other income	35.875%	41%
Distribution Tax	12.8125% of dividend distributed. (Basic Rate 12.5% + 2.5% surcharge thereon)	12.8125% of dividend distributed. (Basic Rate 12.5% + 2.5% surcharge thereon)
Minimum Alternate Tax ('MAT')	7.6875% of book profits unless specifically exempt	7.6875% of book profits unless specifically exempt
Carry forward of unabsorbed losses and depreciation	Depreciation-No limit Loss – 8 years	Depreciation-No limit Loss – 8 years
Withholding taxes:		
• Royalties and fees for technical services- under approved agreement made before 31.5.1997/approved agreement made		20.5%(15% under most DTAA treaties)

after 31.5.1997		
• Interest on foreign currency loans	–	20.5%
• Dividends, income from specified mutual funds or unit trust of India ("UTI") purchased in foreign currency		20.5%
• Capital Gains of FIIs from sale of Indian securities		10.25%
- Long term		30.75%
- Short term		
• Wealth tax (Exempt upto wealth of Rs. 15,00,000)	1%	1%

Source: Internal Compilation

For comprehensive details on allowable deductions and exemptions, please refer to Income Tax Act.

Presumptive Tax

For some specified services, tax is applicable as a percentage of gross receipts, and is called a presumptive tax. It is 5% in case of aircraft operations, 7.5% for ships, and 10% in turnkey civil works projects.

Minimum Alternate Tax

Companies that have book profits but are not taxable on account of large deductions and concessions, must pay a Minimum Alternate Tax (MAT) applies to all companies at a rate of 7.5% (and surcharge as applicable) of the book profits. However, export oriented units and Infrastructure

projects, which have been specifically exempted from income tax, do not have to pay MAT.

Export Incentives

The most important incentives available presently are:

- 100% export- oriented units: Industrial and service units engaged in exports of all their production, software/ Electronic Hardware Export units. And units in Software Technology Parks and Free Trade Zones **are fully exempt from income tax on all their business profits until April 2010.**
    - Units that commence production in year 2000-01 shall have a ten-year tax holiday
    - **Units that commence production in year 2004-05 shall only have a six-year tax holiday.**

- Exporters are entitled to a post-shipment replenishment to offset or neutralize customs duties paid on import content of the exported goods. The credit, known as Duty Entitlement Pass Book (DEPB) applies at a specified percentage (ranges between 4% and 22% of FOB value) of export value, and is freely transferable to other entities.
- Duty remissions in respect of domestically sourced goods are available in the form of 'duty drawback'. However, drawback is not available to exports in which DEPB credit is claimed.

- Supplies from domestic units made to export units are exempt from sales tax and excise duties, but they often involve a long process to obtain refunds.

Capital Gains Taxes

Capital gains are classified into short-term capital gains (not more than12 months for shares/ securities, and not more than 36 months for other assets) and long-term capital gains.

Table 6.2 Taxation Rates on Long term Capital Gains

Taxpayer Status	Flat Tax Rates [%]+Surcharge (SC)
Resident individual	20+SC
Non-resident Indian/ FII	10+SC
Domestic company and partnership firm	20 (10% for listed scrips without indexation) +SC
Venture capital company	20+SC
Foreign company and non-residents	20+SC

Source: internal compilation

For calculating long-term capital gains on shares, deductions are allowed for the cost of acquisition, as well as the cost of conversion (exchange fluctuations) into the currency in which they were purchased originally. Capital gains losses can only be carried forward and set off against capital gains over eight subsequent years.

Dividend Tax

A 12.5% dividend tax is levied on the company on distributed dividends. This dividend is not taxable in the hands of the recipient.

6.2 Taxation of Foreign Entities

Foreign companies - branch offices, project offices, and non-resident investors/promoter companies are taxed on their Indian income, when it arises in India or arises out of Indian operations. Even wholly owned and subsidiary companies are assessed separately under Indian Tax Laws.

Indian income includes royalties, technical service fees, dividends, and capital gains on sale of Indian company shares, besides business income originating from branch or project operations.

Liaison offices are **not taxable** in India, as they are not allowed to undertake any business/commercial activity.

Double Tax Avoidance Agreements

Foreign companies are taxed under the withholding provisions of bilateral Double Taxation Avoidance Treaties, which India has signed with many countries, including the Netherlands. The bilateral treaties provide tax credit for taxes withheld or paid in India that correspond to Indian income tax. The tax credit is limited to the lower of the tax paid abroad and the Indian tax on the foreign company.

Expatriate taxes

Individuals are required to pay tax on remuneration, income from property, professional and business income, capital gains and other sources.

A foreign national in regular employment/service contract in India in a foreign company or in an Indian

Company is taxable on his earnings in India, including on income received outside India relating to employment in India. Further, as per recent regulations, the global income of foreign nationals residing in India for two years or more, will become taxable in India from the third year of their stay in India.

Income tax liabilities are calculated on the basis of a slab structure, providing for standard deductions, and special tax saving schemes. Deductions include premium paid for insurance, contributions to public provident funds, etc.

Table 6.3 Individual Income tax structures

Income Slab	Rates of Income Tax
Up to Rs.50.000	nil
50 - 60.000	10% of income over Rs.50.000
60 - 150.000	Rs.1.000 + 20% of income over Rs.60.000
Above 150.000	Rs.19.000 + 30% of income over Rs.150.000
Above 850.000	A 10% surcharge on the tax value

Source: Internal compilation

For details of available deductions and exemptions, please refer to Income Tax Act or consult an accountant.

Wealth Tax

Certain non-productive assets like any building or land, jewellery, aircraft, cars, urban land etc., valued beyond Rs. 1.5 million are taxable at 1% for the amount exceeding this limit under the wealth tax.

Gift Tax

No tax is payable by a donor or a donee on any gift made on or after 1.10.1998. Gifts can be made in Indian

rupees from any person resident in India to another resident or non-resident. However, gifts through international remittances may be exchanged between blood relatives only.

6.1 Indirect Taxes

Central excise and Customs duties are the main indirect taxes levied and collected by the Central Government.

Custom Duties

Customs duties are collected by the central Government on goods imported into India. Duties consist of three parts: a basic, additional and special additional duty, applying in a cascading manner. As a result, the final duties are much higher than the basic duties, which are also called border tariffs by the WTO. In line with commitments to the WTO, India has reduced basic tariffs of nearly all-industrial goods below 40%. Still, **India's basic duties are six times European levels and thrice the ASEAN levels**.

Table 6.4 Illustrations of Customs Duties

Heading	*Amount*	*Cumulative*
Final customs duties for a product landed value 100, based on basic duty 25%, additional duty 16% and Special Additional duty4%		
Assessable value		100.00
Basic duty 25% of landed value	25	
Subtotal1		125.00
Additional duty @ 16% on subtotal 1	20	
Subtotal 2		145.00

Special Additional Duty @ 4% of Subtotal 2	5.80	
Total value:	**150.80**	
Effective import duties		**50.80%**

Export duties

India applies export duties on a list of 26 items including animal skins, certain agriculture commodities. The tariff ranges from 0.5% to 10% and, in several cases, a floor price is set for export FOB prices.

Central Excise Duty

A two-part excise duty structure applies on all goods manufactured in India.

- The first component is a fixed VAT (CENVAT) is fixed at a uniform rate of 16% and is eligible for credit on excise-duty paid inputs; and
- The second component is a special excise duty applying at 8%, 16% or 24% depending on the classification of the product in the excise tariff schedule, with no duty credit applicable on this component.

Central Sales Tax

- Governs the sale of goods involving the movement and transfer of goods from one state to another
- The rate of tax depends upon class of goods sold and is normally 4%

Local Sales Tax

- Is imposed on all sales within the state, and varies from state to state.
- Different rates exist for different products groups.

India was to introduce a uniform VAT system in all states before June 1, 2003. However, this deadline has been deferred

due to inadequate preparation by several states and a lack of agreement over the rate of the uniform tax. The Finance Ministry apprehends that a nationwide VAT system may not be operational until 2007 and a lot of effort still remains to be made in that direction.

Octroi

- Is an entry tax on goods levied in the state of destination of the goods
- Many states have exempted octroi altogether.

Expenditure Tax

Expenditure tax is levied at a flat rate of 10% on the expenditure incurred by any person in a hotel where the room charges are Rs 1,200 or more per day per individual

Service Tax

A Service Tax of 8% on the value of invoices levied on nearly all business services

Stamp Duty

Transactions are required to be recorded on instruments containing stamps of a value as specified by the Stamps Act. The duty amounts to the value of the stamps rather than determined by the value of the transaction itself.

Property Tax

Taxation of immovable property transactions, such as leasing as executed by a lease deed, mortgage, sale, and registration of ownership.

7. Experiences of Dutch Companies

Several Dutch companies were interviewed for this business guide to sample their experiences and advice for potential investors. This section provides short summaries of how these companies experience the business environment, dealt with certain problems, achieved their success and also some points of advice for future Dutch investors.

Shell India Gas and Power

- So far Shell sees their success in India as moderate but still experienced a more than 10% growth of activities in 2002 and are counting on a similar trend in the next years. (Shell has recently invested 500 million $ in building a port for importing LPG)

- Shell has had some difficulties obtaining permits in a rapid pace but while doing so they found that they were dealing with well-organised institutions. These institutions carried a positive view towards foreign investment

- The import duties and customs handling is also seen as a hurdle while doing business in India, therefore, Shell hires specialists (often local) to take care of these matters in a cost-efficient way

- Shell's overall assessment of the Indian market is positive with the growing market as a major point

Royal Haskoning

- Haskoning's assignments are often related to the design and engineering of ports. They notice that the Dutch expertise (especially naval) is highly appreciated and gives them an edge over other competitors.

- The regulatory environment is seen as rather difficult to deal with because of constant changes that are made. This does not provide a clear picture.

- As a service providing company Royal Haskoning India does not require major inputs except the input of knowledge. This knowledge can be easily obtained because of the excellent education system that India provides

- The fact that new and better infrastructure is being set up is a positive outlook for India as a country and it will provide major opportunities for companies such as Royal Haskoning.

UNID Flower bulbs

- Unid saw a substantial annual growth in sales and profit. This growth is being attributed to the rise in earning and spending potential of Indians, which leads to the ability to buy more luxury and lifestyle goods, including imported tulips.

- There are some negative points as well according to UNID, such as heavy import duties and regulations that raise the costs and a weak protection of property rights that sometimes influence the selling decision

KLM Royal Dutch Airlines

- KLM has been present in India since the first half of the 20th century. This fact proves that over the years KLM has reached a certain level of success while operating in India.

- However, at current date KLM sees their Indian operations as not very successful. The demand for flights from Amsterdam to Delhi and vice versa is high enough to run a more than profitable operation. Unfortunately KLM has to deal with bi-lateral

agreements (between the Indian and the Dutch government) that are open for improvement.

- As we all know, the aviation sector is in a dip on a worldwide scale. But major issues such as the war in Iraq and SARS did not really affect aviation in India as it did affect other places in Asia

IHC Holland

- IHC assesses their dredging business in India as successful. In 1988, when the liaison office was established, they had to deal with difficult rules that made doing effective business quite hard. But those days are over since the Indian government liberalized and really opened its doors to foreign investors.

- Competition for IHC in the Indian dredger market is rather weak. This also has to do with the outstanding name of IHC in dredger building and the Dutch expertise in marine industries in general.

- A general advice from the Managing Director of IHC's liaison office: Take advantage of the huge population and the liberalizing government.

Nickerson-Zwaan Seeds Pvt. Ltd.

- They rate their performance in India as successful. Setting out realistic objectives and trying to grow from there achieved this success.

- As with many other companies, the regulatory environment that Nickerson-Zwaan is facing in India is experienced as rather difficult. With bureaucracy being the main hurdle and the unpredictability of administrative decision making being a good second.

- Practically all sales are made in the Indian domestic market, and so, Nickerson-Zwaan deals with mostly Indian customers. Because not all clients are very reliable they feel it is important to be strict when setting out the credit limit and the other terms of payment.

- An advice from Nickerson-Zwaan: stick to your own principles but keep realizing that you are in a very different country.

Philips Software Centre Pvt. Ltd.

- Over the past years the software industry could count upon several advantages passed out by the government, and has also been very open towards foreign investment in the IT- sector

- For a company like Philips Software Centre the human resources are the most important, and that is exactly where India excels: the people speak English, they are highly motivated and work at low cost

- So far the Philips Software Centre in India has truly been a success story where hardly any mentionable difficulties have been encountered. However, it should be made clear that smaller IT businesses will not always be able to count on the same support and quick solutions offered by the government

- For Philips Software Centre and any other internationally operating software developer India is a place where they have to be

Solid Solutions Exact Pvt. Ltd.

- The relations with the administration were all rated as difficult. The obvious reasons being: bureaucracy, the high level of corruption and the fact that Solid Solutions Exact is just a small

company and thus not able to make any demands on State or Union level

- For IT companies such as Solid Solutions Exact their human resources are their main assets, and well-trained, English speaking employees can be found abundantly in India

- Solid Solutions Exact is expecting to be successful and they are looking at a growth in production capacity of 100% within 2003

- **Some points of advice from the Dutch expatriate:**
  - **When hiring employees checking the marital status could prove useful. Employees with families to support will look for job security and the labour turnover will be lower**
  - **When hiring employees, a company should watch out for people with false graduation papers. A wise thing to do is to make up your own test and assess their knowledge in this way.**
  - **Provide excellent power back-up facilities and a good protection system for electronic appliances**

Stahl India Pvt. Ltd.

Stahl India even experiences the regulatory environment as average rather than difficult. Stahl India explains the good relations with the administrative services as follows:

- The right people and a bit of luck

- The fact that Stahl is a mid-size company (not to small, not to big)

- Planning ahead made everything go a lot smoother

- Stahl was welcome thanks to their good brand image

We should mention that this information was obtained from the Indian Financial Director who admitted to be a bit biased.

The customers of Stahl India are appointed Indian distributors and a few direct buyers. For Stahl this leads to the fact that there is no need for advertising and marketing as well as it reduces the risk of dealing with unreliable buyers.

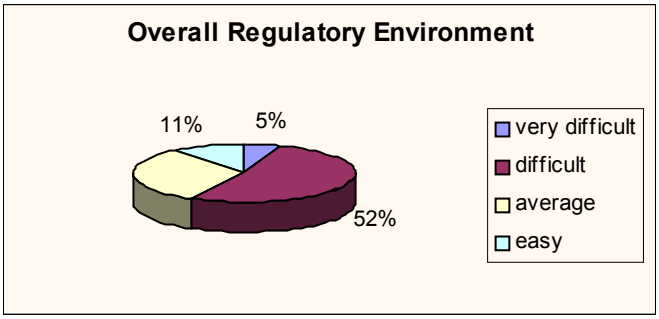
General advice from Dutch expatriates active in India:

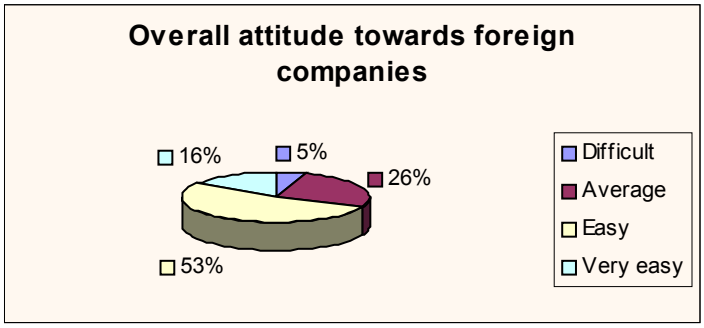
- Plan ahead
- Be patient
- Hire good local staff
- Use well-known international accountancy agencies
- **Do not expect miracles to happen in the beginning**
- Know the rules
- Take advantage of the growing economy, the huge population and the liberalizing government

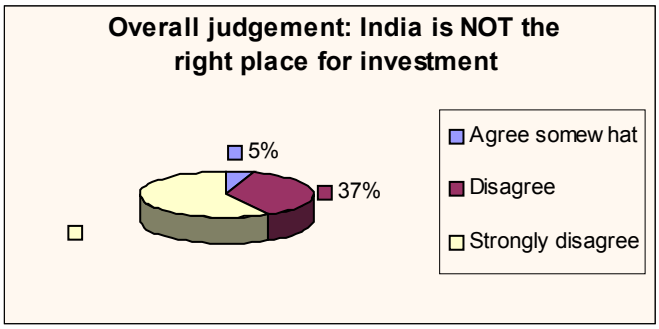
States seen as the most attractive ones for investment:

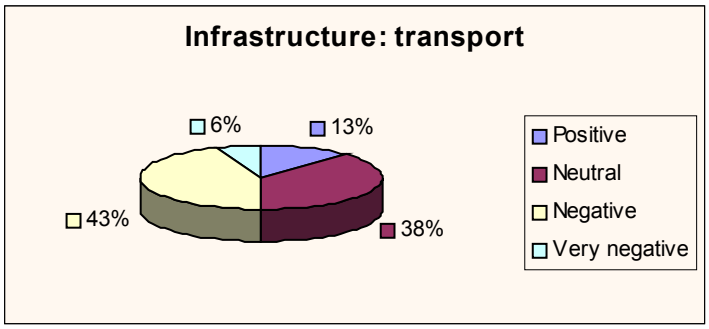
- Karnataka
- Delhi
- Tamil Nadu
- AP
- Gujarat
- Maharashtra
- Haryana

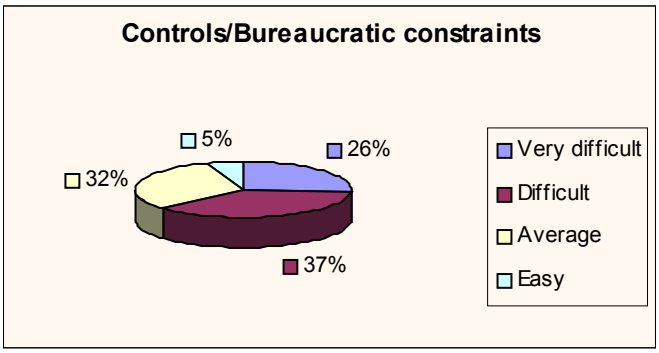
Below you will find some pie charts reflecting the business environment and in annexure I a list of the companies that were contacted and a questionnaire. Please be aware that some of the questions in the questionnaire were not applicable to all sectors of industry or were not answered due to confidentiality reasons, and so, some of the pie charts contain less than 19 answers.

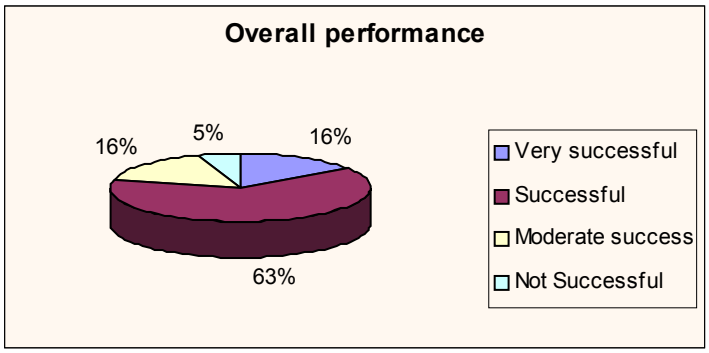

Overall Regulatory Environment
11%
5%
52%
very difficult
difficult
average
easy

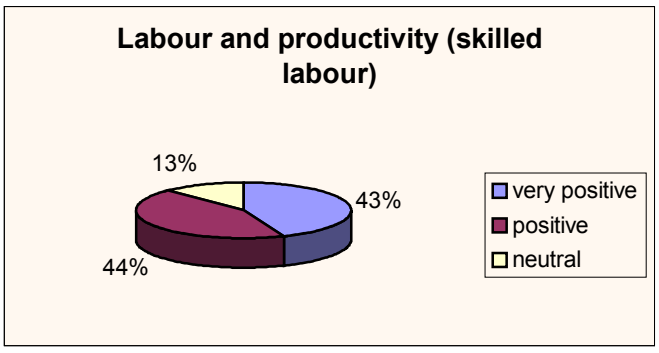

Overall attitude towards foreign companies
16%
5%
26%
53%
Difficult
Average
Easy
Very easy

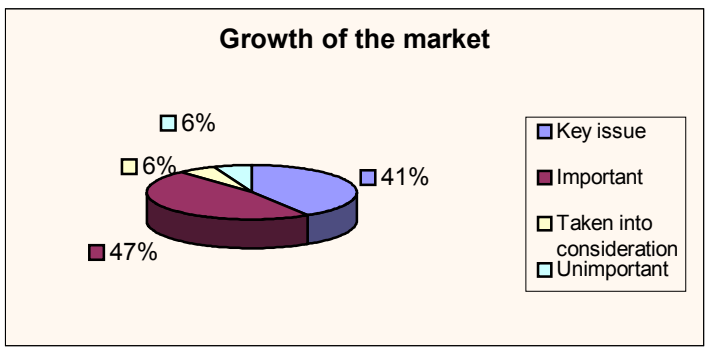

Overall judgement: India is NOT the right place for investment
5%
37%
Agree somew hat
Disagree
Strongly disagree


Infrastructure: transport
6%
13%
43%
38%
Positive
Neutral
Negative
Very negative


Controls/Bureaucratic constraints
5%
26%
32%
37%
Very difficult
Difficult
Average
Easy


Overall performance
16%
5%
16%
63%
Very successful
Successful
Moderate success
Not Successful


Labour and productivity (skilled labour)
13%
43%
44%
very positive
positive
neutral


Growth of the market
6%
6%
41%
47%
Key issue
Important
Taken into consideration
Unimportant

Checklist of Considerations for Dutch investors

I. Pre-investment Phase

Market analysis

- Do not overestimate the market size and the consumer population, based on published data.
- Indian markets are very price- sensitive, conservative, and operate under peer group psychology. Drastic changes in consumers' spending patterns take time.
- Adopt regional focus while having a national agenda.
- 'High profile' is not always the best strategy.
- **Speak to compatriots operating in India.**

II. Business structure

- Consider carefully the 'need' for a local partner.
- Find out alternative equity holdings such as FIIs, public issues – which together can form as much as 44% to 49% of the equity of your Indian company, obviating the need for a JV partner.
- Choose the business entity (private limited or public limited company) based on turnover expectations, and future plans for accessing public equity.
- If a local partner is preferred, carry out a due diligence review, and also check the memorandum and articles of association of the proposed joint venture company thoroughly.

III. Contracts

Signatures have no weight and most agreements are renegotiable. Financial commitment of the partner is the surest confirmation of implementing the JVs. This is especially so in view of the slow legal enforcement process.

- Understand the full implications of taxation on lumpsum, royalties, etc and also term like 'net' and 'gross' payments.

- Involve detailed 'force-majeure' clauses and arbitration conditions in agreements, besides clear exit clauses upon the occurrence of specific conditions in the venture.
- Enforce all oral understandings in writing; do not leave anything uncovered- even in confidential agreements.

IV. Investment Phase

Location aspects

- Understand the zoning and environmental aspects applying to the location.
- Check out property titles, and preferably buy land directly from the Government.
- Ensure that property titles are transferable to the company and do not remain in private names or under power of attorney.
- Understand tax and other incentives available in various locations.
- Check out availability of resources logistics, and transportation, besides social amenities and living conditions before finalising your business and factory location.

Management/personnel

- Determine the actual need for posting expatriates at various levels, especially as a Director.
- Understand all local employment terms, income levels and social costs, before finalising an HR policy.
- Outsource as much work as possible.
- Avoid locations known to harbour militant trade unionism.

Running the business

- Follow all provisions of the Factories Act, Industries Regulation Act, Labour Act and others applying to your business.
- Decide marketing policy based on specific market analysis for your product, you may often be surprised!

- Follow accounting and management practices as per the Companies Act, and appoint an Auditor and a Chartered Secretary to take care of essential statutory compliance needs.
- Have a good liaison agent to take care of government related issues – it can save you time and unnecessary problems.
- Deal with each circumstance on its own terms: generalization is difficult in India, and it is important to assess specific issues and find specific solutions for each case.
- Social customs differ among states, and a varying degree of local adaptation is required depending on the business location.

8. Best States for Investment

Maharashtra

Population million	SDP	SDP/ capita	SDP Growth	Big towns	Urban population	Share of state in nation's total		
						Area	FDI	Investment
96.75	212216	23398	18.45	27	42.4		12.5	15.77

Economic Activity: Manufacturing- 35%; Services- 44%; Agriculture -21%
Investment Profile: Rs.1468 bn, 15.77% of national investment
Investor Profile: Govt. 55%; Foreign 23.1%; Indian 21.9%
Market Potential Value Index: 1532.09; Market Potential Rank: 1
States Priority areas: Software, Electronics, Textiles, Auto-ancillaries, and Metals.
Investment Strengths: Well-developed, fast improving Physical/ social infrastructure, excellent financial infrastructure, largest market for goods and services; high purchasing power
Investment Weakness: Deteriorating state government image as business friendly; sharp and rapid deterioration in state finances in the last 5 years; low irrigation coverage, resulting in high variability in agricultural output.

Rankings	Value	Rank	Rankings	Value	Rank

Physical infrastructure					
Per capita power	557	6	Village electrified	100	1
Power tariff	3.51	24	Power surplus	-2.9	13
Telecom density	4.79	4	Cell phone / 100 persons	1.77	3
Road length/ 1000 sq. km	1240	4	Surfaced roads/ 100 sq km	93.9	4
District road density	908	3	Railway track length /00 sq km	1.8	9
No of ports	55	1	Cargo share	15.92	3
Port capacity	40.7	1	Turnaround time	5.75	5
Airports	9	3	Irrigated farming	14.77	21
Special Industry Zones (SEZ)	1+1		Proximity to main ports		1
Quality of Governance					
Power PLF	68.30	5	T&D losses	15.2	2
SEB return on capital	2.2	2	Roads growth	16.75	4
Gross Fiscal deficit	4.9	3	Tax revenue/ expenditure	53.36	5
Labour Infrastructure					
Average minimum wages/day	46	8	Mandays lost in labour disputes	1302	14
Social Infrastructure					
Literacy rate	77.27	10	% urban population	42.40	3
Market Potential Index	1532	1	Hospital beds per 000 persons	1.00	11
Perceptions of Investors					
Physical infrastructure		1	Quality of Governance		1
Labour		1	Social Infrastructure		1

Gujarat

Population million	SDP	SDP/ capita	SDP growth	Big towns	Urban population	Share of state in nation's total		
						Area	FDI	investment
50.59	89317	18625	19.44	21	37.35	196024	3.7	11.15

Economic Activity: Manufacturing- 34%; Services- 37%; Agriculture -29%
Investment Profile: Rs.1443bn, 11.15% of national investment
Investor Profile: Govt. 47%; Foreign 3.6%; Indian 49%
Market Potential Value Index: 412.8; Market Potential Rank: 8
State priority areas: Infotech, Gems/ jewellery; Electronics, garments; food processing; leather
Investment Strengths:
Business friendly state policies, responsive local administration, extensive network of roads, ports, railways and telecom in most parts, well developed financial structure.
Investment weakness:
Deficient power supply, highest power tariff, high cost of labour, frequent disputes.

Rankings	**Value**	**Rank**	**Rankings**	**Value**	**Rank**
Physical infrastructure			.		
Per capita power	686	4	Village electrified	99.5	3
Power tariff	3.96	27	Power surplus	-5.3	14
Telecom density	3.88	7	Cell phone / 100 persons	0.98	5
Road length/ 1000 sq. km	682.8	9	Surfaced roads/00sq. km	42.4	9
Rankings	**Value**	**Rank**	**Rankings**	**Value**	**Rank**

District road density	494.6	10	Railway track length /00 sq km	2.7	7
No of ports	41	2	Cargo share	22.14	1
Port capacity	26	4	Turnaround time	6.71	9
Airports	10	2	Irrigated farming	36.25	10
Special Industry Zones (SEZ)	1		Proximity to main ports		2
Quality of Governance					
Power PLF	65.6	8	T&D losses	17	5
SEB return on capital	-15.1	7	Roads growth	19.67	2
Gross Fiscal deficit	6.3	8	Tax revenue/ expenditure	66.42	2
Labour Infrastructure					
Average minimum wages/day	64.8	3	Mandays lost in labour disputes	1080	13
Social Infrastructure					
Literacy rate	61.29	15	% urban population	37.35	4
Market Potential Index	412.8	8	Hospital beds per 000 persons	1.43	7
Perceptions of Investors					
Physical infrastructure		2	Quality of Governance		2
Labour		2	Social Infrastructure		4

Andhra Pradesh

Population million	SDP	SDP/ capita	SDP growth	Big towns	Urban population	Share of state in nation's total		
						Area	FDI	investment
75.72	110525	14715	14.09	32	27.08	2750	2.5	8.37

Economic Activity: Manufacturing- 17%; Services- 43%; Agriculture -40%
Investment Profile: Rs.1443bn, 8.37% of national investment
Investor Profile: Govt. 48.7%; Foreign 21.2%; Indian 30.1%

Market Potential Value Index: 630.4; Market Potential Rank: 4
State Priority Areas: Food processing; Software; Financial services; Electronics; Power; Textiles; Tourism
Investment Strengths: Reform-oriented state, improved governance and administration; fourth largest market in the nation; relatively high purchasing power
Investment Weakness: State Finances under pressure, deficient power supply, high power tariff, low literacy, and poor healthcare coverage.

Rankings	Value	Rank	Rankings	Value	Rank
Physical infrastructure					
Per capita power	336	12	Village electrified	99.9	2
Power tariff	3.30	21	Power surplus	-14.4	20
Telecom density	2.98	9	Cell phone / 100 persons	0.54	7
Road length/ 1000 sq. km	653	10	Surfaced roads/ 00 sq. km	40.1	10
District road density	496.1	9	Railway track length /00 sq km	1.9	9
No of ports	13	4	Cargo share	13.83	4
Port capacity	31.4	3	Turnaround time	6.01	7
Airports	8	5	Irrigated farming	42.5	9
Special Industry Zones (SEZ)	1	23	Proximity to main ports		4
Quality of Governance					
Power PLF	82.00	1	T&D losses	23	16
SEB return on capital	-19.3	11	Roads growth	15.75	5
Gross Fiscal deficit	4.1	10	Tax revenue/ expenditure	51.27	6

Labour Infrastructure					
Average minimum wages/day	27.0	15	Mandays lost in labour disputes	1357	16
Social Infrastructure					
Literacy rate	69.97	28	% urban population	27.08	7
Market Potential Index	630.4	4	Hospital beds per 000 persons	0.40	24
Perceptions of Investors					
Physical infrastructure		3	Quality of Governance		1
Labour		4	Social Infrastructure		5

Karnataka

Population million	SDP	SDP/capita	SDP growth	Big towns	Urban population	Share of state in nation's total		
						Area	FDI	investment
52.73	84686	16343	13.46	21	33.98	191791	5.4	7.86

Economic Activity: Manufacturing- 22%; Services- 39%; Agriculture - 39%
Investment Profile: Rs.956 bn, 7.86% of national investment
Investor Profile: Govt. 30.3%; Foreign 27%; Indian 42.7%
Market Potential Value Index: 381.2; Market Potential Rank: 9
State priority areas: Infotech; electronics; auto-components; leather, textiles, pharmaceuticals
Investment Strengths:
Conservative fiscal policies of the state administration; relatively healthy state finances, well developed and adequately -maintained telecom infrastructure, easy availability of highly skilled workers; few industrial disputes.
Investment Weaknesses:

Shortage of power, frequent rationing, and high tariff; relatively slow rate of growth in the rail and road networks in the state, low irrigation coverage, resulting in high dependence on rain fall.

Rankings	Value	Rank	Rankings	Value	Rank
Physical infrastructure					
Per capita power	340	11	Village electrified	98.6	5
Power tariff	3.25	20	Power surplus	-20.3	25
Telecom density	2.73	9	Cell phone/ 100 persons	0.83	5
Road length/ 1000 sq. km	798	8	Surfaced roads/ 00 sq. km	54.1	8
District road density	516.8	8	Railway track length /00 sq km	1.6	10
No of ports	10	6	Cargo share	5.46	7
Port capacity	16.45	7	Turnaround time	4.10	2
Airports	6	9	Irrigated farming	23.79	16
Special Industry Zones (SEZ)	-	25	Proximity to main ports		5
Quality of Governance					
Power PLF	75.2	3	T&D losses	17.4	7
SEB return on capital	3	1	Roads growth	0.80	20
Gross Fiscal deficit	4.5	9	Tax revenue/ expenditure	57.36	3
Labour Infrastructure					
Average minimum wages/day	49.4	14	Mandays lost in labour disputes	429	9

Social Infrastructure					
Literacy rate	67.04	22	% urban population	33.98	5
Market Potential Index	381.2	9	Hospital beds per 000 persons	0.84	15
Perceptions of Investors					
Physical infrastructure		5	Quality of Governance		5
Labour		5	Social Infrastructure		3

Tamil Nadu

Population million	SDP	SDP/ capita	SDP growth	Big towns	Urban population	Share of state in nation's total		
						Area	FDI	investment
62.11	131731	21229	16.22	26	43.86	130058	5.4	7.48

Economic Activity: Manufacturing- 34%; Services- 45%; Agriculture - 21%
Investment Profile: Rs.1388bn, 7.48% of national investment
Investor Profile: Govt. 55.1%; Foreign 14.9%; Indian 29.9%
Market Potential Value Index: 630; Market Potential Rank: 5
State Priority Areas: Electronics; software; auto components; pharmaceuticals; leather
Investment strengths:
Business-savvy state government; responsive local administration; good railways, ports and telecom network; adequate road connectivity; availability of low cost labour through out the state.
Investment weaknesses:
Large power deficits ;high power tariffs for industry; lowest purchasing-power among southern states, over- strained and poor coverage of public healthcare.

Rankings	**Value**	**Rank**	**Rankings**	**Value**	**Rank**

Physical infrastructure					
Per capita power	469	8	Village electrified	100.0	1
Power tariff	3.65	25	Power surplus	-14.1	18
Telecom density	2.99	8	Cell phone/ 100 persons	1.32	4
Road length/ 1000 sq. km	1177	5	Surfaced roads / 00 sq.km	90.3	5
District road density	407.8	13	Railway track length /00 sq km	3.2	4
No of ports	13	4	Cargo share	16.01	2
Port capacity	33.5	2	Turnaround time	6.60	5
Airports	7	7	Irrigated farming	50.79	5
Special Industry Zones (SEZ)	1		Proximity to main ports		3
Quality of Governance					
Power PLF	68.10	6	T&D losses	17	5
SEB return on capital	-3.1	4	Roads growth	2.43	14
Gross Fiscal deficit	4.1	5	Tax revenue/ expenditure	55.54	4
L abour Infrastructure					
Average minimum wages/day	45	9	Mandays lost in labour disputes	1925	17
Social Infrastructure					
Literacy rate	73.47	13	% urban population	43.86	2
Market Potential Index	629.9	5	Hospital beds per 000 persons	0.87	12
Perceptions of Investors					
Physical infrastructure		4	Quality of Governance		4
Labour		3	Social Infrastructure		2

Delhi

Population million	SDP	SDP/ capita	SDP growth	Big towns	Urban population	Share of state in nation's total		
						Area	FDI	investment
13.78	56253	39620	13.53	1	93.01	1483	17	1.06

Economic Activity: Services- more than 90%
Investment Profile: Rs.141bn, 1.06% of national investment
Investor Profile: Govt. 55.1%; Foreign 18.6%; Indian 26.3%
Market Potential Value Index: 498.37; Market Potential Rank: 5
State Priority Areas: Hotels; Tourism; Infotech; Transportation; Power
Investment Strengths:
Advanced physical infrastructure; richest market in the nation and high rate of urbanization developed service sector
Investment Weaknesses:
Local administration still perceived as not business friendly and corrupt; high transmission and distribution losses; high costs of labour, infrastructure and civic services

Rankings	Value	Rank	Rankings	Value	Rank
Physical infrastructure					
Per capita power	590	5	Village electrified	100.00	1
Power tariff	2.99	18	Power surplus	-1.90	11
Telecom density	16.47	1	Cell phone/ 100 persons	8.08	1
Road length/ 1000 sq. km	18657	1	Surfaced roads/ 00 sq km	1690.0	1
District road density	825.3	4	Railway track length /00 sq km	13.5	1
No of ports	–	–	Cargo share	–	–
Port capacity	–	–	Turnaround time	–	–
Airports	2	18	Irrigated farming	95.52	1

Special Industry Zones (SEZ)	–		Proximity to main ports		23
Quality of Governance					
Power PLF	47.20	13	T&D losses	43	26
SEB return on capital	-32.5	14	Roads growth	43.83	1
Gross Fiscal deficit	2.78	2	Tax revenue/ expenditure	115.66	1
Labour Infrastructure					
Average minimum wages/day	70.7	1	Mandays lost in labour disputes	33	1
Social Infrastructure					
Literacy rate	81.82	5	% urban population	93.01	1
Market Potential Index	498.4	7	Hospital beds per 000 persons	1.99	5
Perceptions of Investors					
Physical infrastructure		8	Quality of Governance		8
Labour		8	Social Infrastructure		6

Uttar Pradesh

Population million	SDP	SDP/ capita	SDP growth	Big towns	Urban population	Share of state in nation's total		
						Area	FDI	investment
166.052	164630	9765	12.52	42	20.78	2294411	2.4	6.64

Economic Activity: Manufacturing- 20%; Services- 37%; Agriculture - 43%
Investment Profile: Rs.729bn, 6.64% of national investment
Investor Profile: Govt. 49.3%; Foreign 9.9%; Indian 40.8%
Market Potential Value Index: 800.4; Market Potential Rank: 2
State priority areas: Agriculture-based industries; auto ancillaries; electronics; Infotech
Investment Strengths:

Adequate coverage of road and railway networks in the state; second largest market amongst all Indian states after Maharashtra; extensive irrigation networks suitable for agri based industries.
Investment Weaknesses:
Political instability and rampant corruption at all levels of the state administration; frequent rationing of power supply; high industrial power tariff; low levels of literacy, dysfunctional public healthcare system.

Rankings	Value	Rank	Rankings	Value	Rank
Physical infrastructure					
Per capita power	197	18	Village electrified	79.0	9
Power tariff	3.41	23	Power surplus	-12.3	17
Telecom density	0.96	23	Cell phone/ 100 persons	0.31	11
Road length/ 1000 sq. km	818	7	Surfaced roads/00 sq.km	47.1	9
District road density	367.5	15	Railway track length /00 sq km	2.6	8
No of ports	–	–	Cargo share	–	–
Port capacity	–	–	Turnaround time	–	–
Airports	9	3	Irrigated farming	65.80	4
Special Industry Zones (SEZ)			Proximity to main ports		
Quality of Governance					
Power PLF	48.8	12	T&D losses	21	13
SEB return on capital	-1.4	3	Roads growth	-0.82	25
Gross Fiscal deficit	5.9	14	Tax revenue/ expenditure	34.09	12
Labour Infrastructure					
Average minimum wages/day	42.0	10	Mandays lost in labour disputes	1010	12

Social Infrastructure					
Literacy rate	57.36	31	% urban population	20.78	9
Market Potential Index	800.4	2	Hospital beds per 000 persons	0.34	25
Perceptions of Investors					
Physical infrastructure		26	Quality of Governance		26
Labour		24	Social Infrastructure		26

Madhya Pradesh

Population million	SDP	SDP/ capita	SDP growth	Big towns	Urban population	Share of state in nation's total		
						Area	FDI	investment
60.38	86385	10907	14.56		26.67	308144	5.2	9.27

Economic Activity: Manufacturing- 26%; Services- 28%; Agriculture - 46%
Investment Profile: Rs.652bn, 9.27% of national investment
Investor Profile: Govt. 42.2%; Foreign 13.1%; Indian 44.7%
Market Potential Value Index: 357.3; Market Potential Rank: 10
State priority areas: Electronics; Minerals, food and agriculture industries; telecom; Auto.
Investment strengths:
Proactiveness in seeking investment; non-disruptive labour environment; connectivity to large northern and western markets
Investment weaknesses:
Highest power tariffs, poor road, rail and telecom infrastructure in state; second lowest purchasing power in country

Rankings	**Value**	**Rank**	**Rankings**	**Value**	**Rank**

Physical infrastructure					
Per capita power	368	10	Village electrified	95.6	6
Power tariff	3.85	26	Power surplus	-6.70	15
Telecom density	1.21	21	Cell phone/ 100 persons	0.29	13
Road length/ 1000 sq. km	460	11	Surfaced roads / 00 sq. km	20.8	14
District road density	187.4	22	Railway track length /00sq km	1.3	14
No of ports	–	–	Cargo share	–	–
Port capacity	–	–	Turnaround time	–	–
Airports	11	1	Irrigated farming	24.67	15
Special Industry Zones (SEZ)	–		Proximity to main ports		24
Quality of Governance					
Power PLF	66.0	7	T&D losses	18.5	10
SEB return on capital	-18.8	10	Roads growth	1.63	17
Gross Fiscal deficit	3.9	4	Tax revenue/ expenditure	33.06	13
Labour Infrastructure					
Average minimum wages/day	50.4	6	Mandays lost in labour disputes	108	4

Social Infrastructure					
Literacy rate	64.11	25	% urban population	26.67	8
Market Potential Index	357.3	10	Hospital beds per 000 persons	0.27	27
Perceptions of Investors					
Physical infrastructure		11	Quality of Governance		9
Labour		11	Social Infrastructure		16

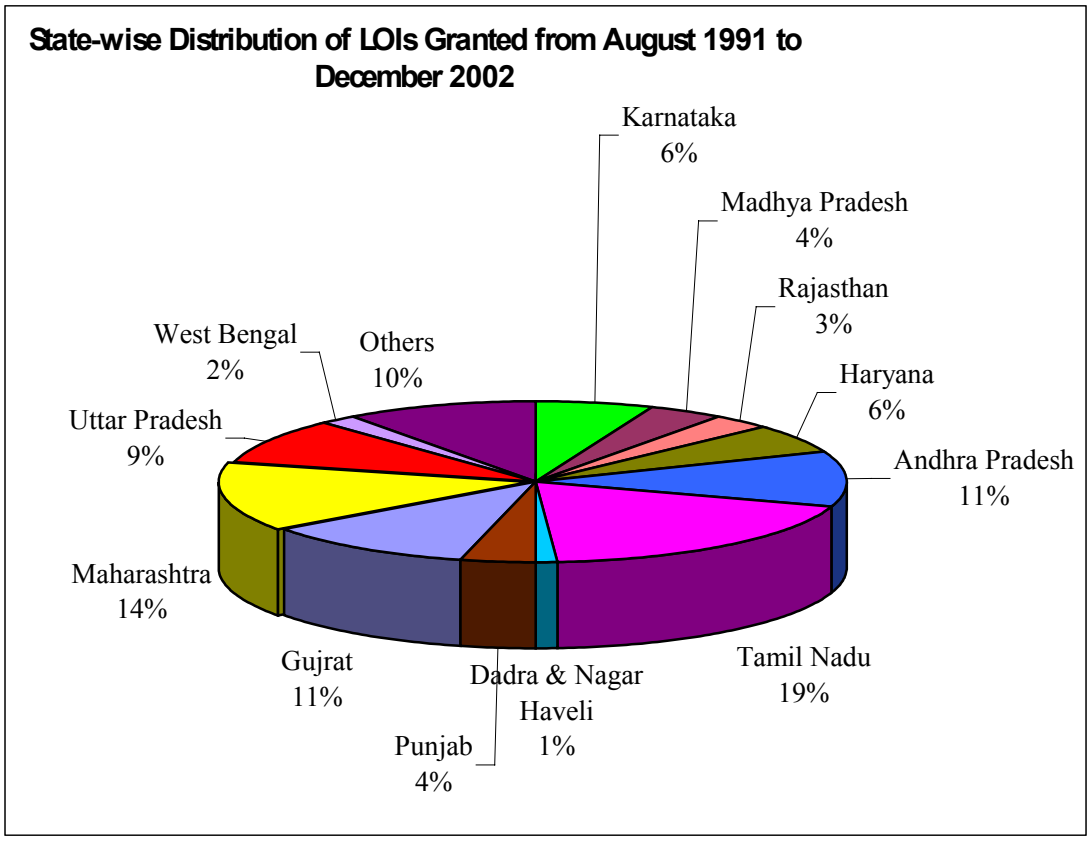
West Bengal

Population million	SDP	SDP/ capita	SDP growth	Big towns	Urban population	Share of state in nation's total		
						Area	FDI	investment
80.22	143411	18021	14.13	23	28.03	88752	5.2	4.27

Economic Activity: Manufacturing- 28%; Services- 37%; Agriculture - 35%
Investment Profile: Rs.608bn, 4.27% of national investment
Investor Profile: Govt. 39.4.1%; Foreign 21.7%; Indian 38.9%
Market Potential Value Index: 724.2 Market Potential Rank: 3
State Priority Areas: Petrochemicals; Iron & steel; Food processing; pharma; Infotech.
Investment strengths:
Large market with considerable rural purchasing power; national and international connectivity; power availability with low T&D losses.
Investment weaknesses:
Active and often adversarial trade unions, infrastructure inadequate outside the metro area; slow and unresponsive state government policies toward industry

Rankings	Value	Rank	Rankings	Value	Rank
Physical infrastructure					
Per capita power	197	17	Village electrified	77.9	22
Power tariff	2.83	17	Power surplus	-0.70	6
Telecom density	1.45	13	Cell phone / 100 persons	0.44	11
Road length/ 1000 sq. km	893	6	Surfaced roads/00 sq.km	50.7	13
District road density	526.9	7	Railway track length /00 sq km	4.2	2
No of ports	1	9	Cargo share	9.85	5
Port capacity	25.6	5	Turnaround time	5.89	6
Airports	7	7	Irrigated farming	27.76	13
Special Industry Zones (SEZ)	1		Proximity to main ports		8
Quality of Governance					
Power PLF	52.8	10	T&D losses	18.9	11
SEB return on capital	-63.7	19	Roads growth	6.79	6
Gross Fiscal deficit	8.8	12	Tax revenue/ expenditure	42.43	9
Labour Infrastructure					
Average minimum wages/day	59.0	4	Mandays lost in labour disputes	5861	18
Social Infrastructure					
Literacy rate	69.22	18	% urban population	28.03	6
Market Potential Index	724.2	3	Hospital beds per 000 persons	0.80	16

Perceptions of Investors			
Physical infrastructure	23	Quality of Governance	24
Labour	26	Social Infrastructure	8



Agro Industries: including biotechnology, seed sector, cold storage & refrigeration and food safety and standards

Agriculture engages nearly 70% of the population and is a principal contributor to India's economic output, with an output of Rs 2925 billion (US$ 61 bn) in 2002, accounting for nearly 25% of GDP (at constant prices basis 1993-94). The sector is vast in its coverage, consisting of food grains/ cereals, fruits, vegetables and several commercial crops like oilseeds, cotton, rubber, spices, sugar cane, jute and tobacco. However, a large share of the production comes from small and marginal holdings, and goes for direct consumption. As a result, there is not a high commercial surplus from several segments of agriculture. However, with the introduction of private enterprise in food processing and with increased trade opportunities, this situation is beginning to change.

Food grains occupy the largest share (70%) of the agricultural area, while oilseeds, sugarcane, cotton, rubber and tea are the principal commercial crops. Climatic conditions in India enable two cropping seasons in most places: the Rabi season for winter crop, and the Kharif season for summer crops. Some places with a hot post-monsoon climate, even have a late Kharif planting season.

Food grains Production

Crop	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-02
Rice	77.0	81.7	82.5	86.0	89.7	84.9	93.1
Wheat	62.1	69.4	66.3	70.8	76.4	68.8	71.8
Coarse Cereals	29.0	34.1	30.4	31.5	30.3	31.6	33.9
Pulses	12.3	14.2	13.0	14.8	13.5	10.7	13.2
Food	**180.4**	**199.4**	**192.3**	**203.0**	**209.8**	**196.0**	**212.0**

grains

Source: Economic Survey, (2002-03)

During the year 2001-02, food grains production was estimated at 212 million tonnes, which was about 8% higher than the previous year. Rice, Wheat, Barley, Maize, Sugarcane, Oilseeds, Cotton and Jute constitute the chief food and commercial crops of India.

India also produces a wide range of fruits and vegetables, and is the largest fruits producer (30 mn tonnes) and the second largest vegetable producer in the world (85 mn tonnes) - potato (23 mn tonnes) being the principal vegetable. India is among the top five producers in the world of rice, wheat, groundnuts, coffee, tobacco, spices, sugar, tea, jute, cotton, oilseeds, fruits and vegetables.

Low Productivity

While India is a dominant producer of several agricultural commodities, Indian productivity in almost all crops is far behind the world averages, despite 40 years of concerted and regulated agricultural reforms. Agriculture growth has been below 2.6%, barely coping with the population growth; the growth has been largely due to increase in area under crop, and not from higher yields.

India still depends heavily on rain-fed agriculture: only 53% of agriculture lands, concentrated in a few states, are irrigated. The dependence on monsoons has caused wide fluctuations in the agriculture growth in the past six years. However, India has a comfortable food buffer stock at present. Post-harvest losses leading to enormous wastage of agricultural produce is another major constraint in India: primary wastage is estimated to be more than 23% of the output, due to the absence of an adequate post harvest management programme and cold chains on a national scale.

Livestock sector

India also has an important livestock sector supplementing the agriculture system. The livestock population of 445.28 million plays a vital role in improving the socio economic conditions of the rural masses, and contributes 75 million tonnes of milk, 30 billion eggs, 45 million kg wool, 4.5 million tonnes of meat and 5.3 million tonnes of fish products annually. Given its potential as an alternative subsistence mechanism to crop farming, this sector has been addressed with priority for rural development, with budgetary assistance for livestock development and co-operative farming, in major sectors like dairy/animal husbandry and poultry development.

Floriculture sector

The domestic market for flowers is estimated at Rs 3 billion- mostly stemless flowers, with nearly 50, 000 hectares of cultivation producing 0.2 million tonnes of loose flowers and 450 million stems of cut flowers. Indian flowers like the jasmine, marigold and chrysanthemum have traditionally been used as symbols of devotion in temples as well as in festive decorations.

In the early nineties, floriculture was identified as a thrust area for exports from India, given its varied agro climatic profile, vast land resources, and the availability of abundant labour and agricultural scientists. Based on a Govt evaluation of India's export competitiveness indices in various sectors, floriculture was identified as a potential long term winner, and accorded priority status in the Eighth Plan 1992-97, with a budgetary assistance in development of the sector. The resulting enthusiasm among corporate circles and a bullish Govt outlook facilitated heavy investments to the level of Rs 10 billion in over 100 new units for cultivation of roses, anthuriums, orchids, and other fashionable flowers and bulbs, for export to the auctions at Aalsmeer and other European centres.

Several of these units had been set up with international collaborative assistance including Dutch companies and equipment suppliers, besides marketing assistance agreements for auctioning the products.

Several problems have dogged the sector, and there have been large-scale failures in the private sector. Major causes of failure have been:

- Poor quality control procedures and inconsistence in quality
- Negligence of phyto-sanitary issues leading to rejection of cargoes
- Poor cold chain infrastructure for export
- High freight costs to prime destinations
- Limited capacity in air transport cargo in production areas
- Import duties of 15% in EC under the GSP system
- A limited product portfolio, focusing on rose varieties

Market Size and Market Development

Agriculture has shown severe fluctuations in growth in the past few years, a result of excessive dependence on monsoons given that nearly half of agriculture acreages are not irrigated; 2002-03 saw the worst monsoons in over hundred years, leading to a 3.1% decline in agriculture output.

	1998-99	1999-00	2000-01	2001-02	2002-03
Sector growth	6.2%	0.3%	-0.4%	5.7%	-3.1%
GDP growth	6.5%	6.1%	4.4%	5.6%	4.4%

The future growth trend of agriculture output is likely to see similar fluctuations, even as the sector's share of GDP is reducing, from 31% in 1995 to less than 25% in 2002-03. However, the future growth of agriculture requires India to generate commercial surpluses for international markets, which require interventions in productivity improvements. This study focuses on opportunities in a few specific segments- biotechnology, seeds, cold storage equipment, and food safety regulations/ standards - that have the potential to improve productivity.

Agri-biotechnology

India being a large food producer, the target of a large part of biotechnology activities is in the food sector, especially in primary crops

and inputs to the processing industries. Location competitive advantages, supported by favourable foreign investment policies in the biotech, and loose IPR conditions as perceived by international players, have resulted in several global companies investing in India. The most important area of interest of these companies is the hybrid seeds business. Bio pesticides and Bio-fertilizers are also emerging as areas of interest, given the growth of the organic products industry worldwide.

Given its large agriculture sector, there is a substantial level of public research in varietal development focussing on yield improvement and disease management, fed by a large base of manpower trained in agriculture sciences to provide extension services. As a result, there is a large reservoir of technical manpower (also available competitively) in the sector, which has been used also by private sector operators in agri biotechnology activities. Several international companies have set up research and development facilities in India for hybrid seeds and other biotechnology-based activities.

Seeds

India's seed industry is governed by the Agriculture Ministry, through its Indian Seeds Act (initiated in 1966) and administered through its National Seeds Corporation and State Farms Corporation of India, which produce quality seeds for the mainstream Indian agri-system. Besides the state-owned bodies, several private sector seed producers, including MNCs like Novartis, Cargill and Pioneer Seeds, have been active in India for several years.

The Indian seeds market is one of the biggest in the world, with a turnover of around Rs 25 billion, not considering the notional value of seeds that government distributes free of cost to marginal farmers as part of its agricultural support policy. The sector has three segments: open-pollinated varieties, public hybrids- developed by agencies and institutions under government, and proprietary hybrids- products of the private sector seed companies. In 2002-03, production of certified seeds was 930,000 MT, most of it from government-owned enterprises. The public sector has a major role in the production and distribution of seeds-

a large part being given free to marginal farmers or sold at highly subsidized prices through the state agriculture extension networks.

Private Sector: Currently there are over 200 private seed companies, including a few MNCs, which focus on high value products, the principal emphasis being hybrids for oilseeds, maize, cotton, and horticultural crops. Dutch companies in the sector include Nickersen Zwaan, Bejo Zaden, Nunhems Seeds and Royal Sluis. However, some companies are reported to have sold off their holdings as a result of global restructuring of their businesses. The turnover of the private sector is estimated to be Rs 16 billion, more than 60% of the market turnover, but a lower share of volume sales than the public sector. The proprietary hybrids segment, estimated at 51400 tonnes in 2002, has a market turnover of Rs 4.8 bn, representing nearly 6% of volume market share and 22% by value.

The market is expected to grow to 2.7 million tonnes and Rs 235 billion by 2010, representing a compounded growth of 6% in volume terms but more than 14% in value terms due to the increasing market share of proprietary hybrids and biotechnologically engineered seeds. The preference for hybrid seeds over conventional seeds cuts across farmers with holdings of all sizes.

Transgenic Seeds:

India is yet at the rudimentary stage in respect of transgenic seeds, and the only commercial product released so far is the Bt Cotton by Monsanto-Mahyco, a joint venture of the international seeds giant Monsanto. In 2002, 0.5 million acres were under genetically engineered cotton in four states of India. Meanwhile, transgenic varieties of rice, cabbage, pea, tomato, cauliflower etc. are under field trials and shall complete field assessment by 2005. However, transgenic seeds, including the commercialised Bt Cotton, have been attracting lot of controversy in India. Induction of transgenics is likely to be very low in human consumption products, though may find increased application in commercial crops like cotton or jute.

Import of seeds, planting materials of fruits and vegetables, etc. is allowed for consumption, sowing or planting, against an import permit issued by the Ministry of Agriculture, conditional on fulfilment of phyto-sanitary certification by the country of origin, and post entry quarantine inspections. Special conditions apply to all species of alliums – onion, garlic and leeks, citrus, potato and solanum species, seeds and plant material of fruits and cutting of ornamental plants and flowers.

Some of these conditions are restrictive, and cause long delays in import of materials:

- Potato (all solanum species) – except true potato seeds- are importable only for research by the Central Potato Research Institute, Simla and consignments are to be grown under post entry quarantine.
- Planting material/seeds of fruits are importable only against recommendations of the Directorate of Horticulture, of the State Government, and need growing in post entry quarantine conditions.

While the import of seeds is allowed without restrictions by a farmer/planter, there are also initiatives to upgrade the yields of Indian seeds through induction of high technology. Production of hybrid and high yielding varieties figure among the list of high priority industries, for which automatic approvals are accorded for foreign equity upto 51%.

However, the absence of patent protection and a comprehensive breeders' rights policy is perceived to be the biggest dampener in the development of hybrid technology through collaborative route in India. The Indian Patent Act does not accord patents to life forms, and India does not yet have a sui generis system of plant varietal protection in place as required under the WTO. India's laws on researchers' privilege provide for free exchange of germ plasm and farmer's privilege to conserve, replant and even trade farm grown seeds commercially. These provisions are contradictory to the plant breeder rights provided by the UPOV. India was not a signatory to the UPOV, but has now accepted the UPOV 1978 as its guiding model for a sui

generis system for varietal protection, albeit with several modifications and retention of farmers' privileges. Thus private companies, especially Multinational Companies (MNCs), are reluctant to offer their varieties in India for certification as it exposes inbred parental lines and potentially causes pilferage from seed producers' fields.

The other apprehension for international players in attempting certification is the mandatory accession of all parent lines to the National Gene Bank which risks exposure of purebred lines to copying, given that the certification process for new varieties can take upto three years.

Despite these, use of F1 Hybrids is steadily increasing in India, especially with larger farm holdings and this is an opportunity that is interesting even despite an inadequate IPR protection environment. Several MNC seed companies have entered India through joint ventures or 100% owned subsidiaries, business models that allow them control over the intellectual property: A few examples are: Cargill Seeds, Sun Seeds - a 100% subsidiary of Pioneer Seeds, USA which have set up new ventures for development of hybrid grain and vegetable seeds.

Cold Storage and Post Harvest Refrigeration Equipment

India's geographical complexity and agro-climatic diversity poses enormous challenges in preserving and delivering agriculture produce from the farm to the consumer with minimum spoilage. Post harvest management holds the key to avoid a large part of the Rs 280 billion annual losses (30% of farm produce) from spoilage. At present, there are close to 3500 cold storage units with a storage capacity of over 10 million tonnes; nearly 3000 operated by the private sector, the rest under government or cooperative bodies. Very few cold stores have multiple product capabilities, multi-temperature facilities or controlled atmosphere provisions. Potato accounts for more than 90% of the tonnage, which reflects the low usage levels of cold storage in the agriculture sector. The storage capacity in fruit and vegetables is only 0.11 million tonnes, less than 0.1% of the annual production. Until 1999, the cold storage business

was subject to licensing, storage quantitative controls as well as ceilings on rent rates. As a result, there has been consistent decline in capacity.

In recent years, export opportunities in the fresh produce sector, opening up of imports of food products, as well as the entry of large international companies in industrial food processing, have resulted in fresh opportunities for cold storage activities. This has resulted in a new opportunity for cold chain logistics to handle inland distribution of imported fruits and vegetables (like Australian apple), dairy and meat products (US ice cream, New Zealand lamb and French poultry) as well as farm produce from various parts of India to processing factories (KFC, Domino's and McDonald's kitchens), besides export consignments. The national export promotion body (APEDA) has established storage and certification facilities at the major international airports to handle fruit, vegetables, and other perishable cargoes like flowers. Several international companies (including ATO DLO from the Netherlands) have been assigned studies for establishing a cold chain for principal commodities.

However, the logistics business is still at a nascent stage, and there are no national chains operating in India yet. The most important player in the segment is Snowman Frozen Foods, a Mitsubishi venture that operates multi-product, multi-temperature facilities in 12 cities in India and serves institutional customers like Unilever, Nestle, several imported brands and export parcels of meat, fish and other seafood products. The industry believes that the future growth opportunity lies in transportation of high-value, long shelf-life goods, especially frozen desserts/ ice cream, blast/deep-frozen vegetables and fruits, and processed meat products.

Food Safety Regulations and Standards on Imports

Labelling and Marking Rules: In November 2000, the government imposed specific marking requirements on all packaged imported goods - Maximum Retail Price, month/year of entry into India, importer name and address, and quantity in standard units. This information must be visible at the time of customs clearance, which means it must be printed/ affixed at the time of shipment or prior to customs clearance on arrival. Usually, imported products are kept in a customs bonded warehouse for sufficient

time for the importer to affix the mandatory labelling information, prior to customs clearance.

Technical standards for Quality: Imports of more than 150 products, including 43 food products require mandatory compliance with Indian standards, which require that their manufacturing facilities outside India be approved by the Bureau of Indian Standards. This regulation has been promulgated in view of similar mandatory requirements for the same products if made in India. The products include several food colours, additives and flavours, milk powder, infant milk foods, and mineral water. The Indian standards authority does not have mutual recognition agreements with Europe and therefore the inspections of sites and the actual approval must be carried out by the Indian authority itself, which poses serious resource and time constraints.

In addition to the above, the agro industry is being encouraged to adopt other international standards, such as ISO 9001 and HACCP, though these are non-mandatory in nature.

The EU being a major destination of India's agriculture exports, the increasing importance of the EU technical and safety regulations on imports has resulted in a new need for upgradation and technical assistance to Indian food exporters as well as the national certification bodies dealing with exports. Dutch companies connected with and conversant with food safety regulations of EU member states can find opportunities for providing trade facilitation and trade-related technical assistance through initiatives of the EU and India. Of specific interest might be the Trade and Investment Development Programme, which has a large component on upgradation and capacity building in India's premier export development bodies and the industry as well.

Imports

Table: Agro Industries Sector imports
Figures in US$ million

Seeds		1998-99	1999-00	2000-01	2001-02
1209	Seeds, fruits & spores of the kind used for sowing	9.84	13.59	13.92	14.28
Cold Storage and Refrigeration					
8418	Refrigerators, freezers and other refrigerating eqpt.	60.65	55.38	53.74	60.28
Agricultural equipment					
8432	Agricultural, horticultural & forestry machinery	2.79	5.67	5.57	2.86
8433	Harvesting and threshing machinery	3.51	3.1	5.95	3.5
8434	Milking and dairy machinery	2.48	4.31	4.8	1.12
8435	Presses, crushers…. for fruit juices, beverages	0.77	0.2	0.13	0.4
8436	other agricultural	3.63	2.44	0.78	2.57
8437	Machinery for milling industry	6.21	4.47	6	8
8438	other agricultural machinery	14.21	12.72	10.86	15.26
98010002	Irrigation plants	25.32	5.57	0.25	0
Total Agri Imports (including agricultural products)				**1858.4**	**2294.4**

Origin of Imports 2001-02 (top three countries and The Netherlands), US$ million

Code	Country 1	Country 2	Country 3	Netherlands
Seeds, fruits & spores of the kind used for sowing	Korea RP 3.08	USA 2.83	Japan 2.41	2.09
Refrigerators, freezers and other refrigerating eqpt.	Latvia 20.07	USA 6.39	France 5.00	0.39
Agricultural, horticultural & forestry machinery	China P RP 1.88	Italy 0.33	USA 0.13	0.12

Harvesting & threshing m/c	Japan 1.24	USA 0.80	Italy 0.41	0.12
Milking and dairy machinery	Germany 0.44	Itlay 0.26	Indonesia 0.13	Nil
Presses, crushers…. for fruit juices, beverages	Italy 0.11	Germany 0.08	Australia 0.07	0.04
Other agricultural	Switzerland 0.43	Malaysia 0.42	Netherlands 0.29	
Machinery for milling industry	Switzerland 1.72	USA 1.24	Japan 1.05	0.1
Other agricultural machinery	Germany 3.88	UK 2.84	Italy 2.65	0.47

Foreign Direct Investment

Foreign investment is not allowed in primary agricultural production as such. However, majority ownership including up to 100% is allowed in hybrid seeds based on a technical/ financial collaboration effecting transfer of parental germplasm in India. Investment in cold store infrastructure and in biotechnology is not considered an agriculture activity and up to 100% foreign ownership is allowed in these segments as well.

According to official data, the total foreign investment approved in the sector from Jan 1991 till June 2002 is about $50 million. However, the actual investment may be much lower. Important global companies present and active in India in the seeds and biotechnology sectors include: Monsanto, Pioneer, Dow, Cyanamid, Sun, Zeneca, Syngenta, Bayer Crop Sciences, Hoechst AgreEvo (ProAgro), Aventis, Nunhems, Nickersen Zwaan, Royal Sluis, Novartis, Bejo Zaden, and Hicks Muse Fuse Trust. The only known investments in integrated cold chain infrastructure are Mitsubishi and Accor Hospitality, which have equity partnerships with Indian logistics companies. However, several foreign companies have tie-ups in the refrigeration/ air-conditioning industry, which is covered under the general head of engineering.

Govt. Policies on Agriculture

Social complexities have made agriculture a politically important subject in post independence India. Govt. intervention in agriculture is considerably higher than other sectors of the economy, considering that most of India's farmers do subsistence farming and not commercial farming unlike in several developed nations. The following aspects of Govt. intervention are noteworthy:

Land Ceiling Act

India's agriculture system has been traditionally feudal: land ownership was concentrated in few hands (the zamindars), with the entire cultivation being done by landless labourers, based on a share of the produce for subsistence purposes. The zamindari system was supported by British rule as it enabled tax collections from the landlords. After independence, India enacted a Land Ceiling Act to bring about equitable distribution of agricultural land and provide land for subsistence farming to landless labourers.

The Act restricts individual ownership of land to below 12 ha in irrigated areas and below 22 ha in dry land areas (individual states differ in the ceiling limits). Under the new dispensation, 105 million farm holdings exist in India, of which only 1.6% is a in large farms, covering 17% of the area, medium holdings account for 50% of the areas, while marginal and small farms (less than 0.2 ha) make up 80% of holdings and 33% of area and subsistence crops with primitive agriculture.

Minimum Support Prices

The Government intervenes in farm prices through a scheme of Minimum Support Prices (MSP) announced at the beginning of each season. The MSP ensures a fair price to the farmers and assists in preventing exploitation by traders in rural produce markets. MSP schemes exist for all cereals, pulses and principal oilseeds, and are paid out of the Central subsidy schemes, as the

MSP is higher than economic costs in some products. For several other crops, the states have a recommended pricing policy of State Advised Prices that are adhered to by Govt.- owned or co-operative units such as sugar mills, cotton mills etc.

Co-operatives and Corporate farming

The Govt. encourages and promotes organization of agriculture and processing through the development of farmer co-operatives. There are 353,000 co-operatives with 175 million members involved in agro-processing units, sugar factories, dairy, cotton spinning, and oilseeds processing, besides 6,000 primary co-operative marketing societies in India. Despite a favourable Govt. policy, co-operatives have performed rather poorly. Barring few exceptions, notably the Gujarat Milk Marketing Federation, they have been unable to sustain their operations profitably, and are dogged by financial problems besides excessive bureaucratic and political intervention.

Agriculture is not considered an industry in India. Therefore, commercial or industrial development credit is not available to this sector unlike other industrial activity. As a result, there has been limited involvement of organized private sector in primary agriculture and marketing activities. However, recent policy announcements to promote integrated food processing as a key focus area, have seen some states enact legislation to allow contract farming schemes and also leasing of state-owned holdings for integrated food processing industries in the private sector. PepsiCo, Unilever, Seagram, ConAgra and Mc Donald's have successfully established contract procurement systems for fruits, vegetables and oil seeds even though long gestation periods were involved in their endeavours. Contract farming by the corporate sector faces major procedural hurdles in import of foreign planting materials, due to India's complex phytosanitary regulations and post entry quarantine procedures.

New Agriculture Policy

The imperatives of market liberalization under the WTO influence India's agriculture significantly. India has committed to opening up all agriculture products by April 2001, including products that were initially restricted for imports only by Govt. agencies. The increased privatization of agriculture and mechanisms for price protection to farmers in the post-QR regime are an important part of government's strategy for agricultural growth, as embodied in the New Policy announced in 2000.

The new policy has targeted a 4% annual growth rate by addressing the following aspects:

- Efficient use of resources and technology
- Making available credit to farmers,
- Protecting farmers from seasonal and price fluctuations
- Private sector participation to be promoted through contract farming and land leasing
- Institutionalization of farm credit
- National agriculture insurance scheme
- National livestock breeding strategy

However, the policy needs to be translated into actionable programmes to give effect to the vision.

Foreign collaboration is not encouraged in the primary agriculture sector except in the areas of genetic engineering, tissue culture and biotechnology. Foreign investment is not ordinarily allowed in the plantation sector- tea, coffee, tobacco, rice, etc. although processing activities are all allowed with at least 51% ownership structures. However, export-oriented floriculture and hybrid seeds are two segments where foreign collaborations have been notable.

Government Regulations/Development Promotion Plans/Incentive schemes

Floriculture:

- Financial assistance in the form of soft loans @ 4% through the National Horticulture Boards (upper loan limit of Rs 10 million)
- Subsidies on post harvesting facilities, refrigerated transport, packaging and promotional materials for exports, within overall ceilings
- Airfreight subsidies of 25% of freight to Europe and US
- Simplification of import policy for planting materials, equipment and know-how
- Plan assistance in developing use of plastics in micro irrigation, mulching and other use areas.

Cold storage:

- Incentives for setting up of additional capacity of 2.1 million tonnes for the five-year period 2002-07, almost all under the private sector.
- 25% capital investment subsidy and 50% term loans at concessional interest rates for construction/expansion/ modernisation of cold storages up to 5000 MT capacities. Controlled/ modified atmosphere/ pre-cooling unit facilities are also entitled for the benefits.
- Private sector (including foreign companies) has been allowed to develop agriculture export zones

Seeds

As required under the WTO agreement on TRIPs, India has established a *sui generis* system of varietal protection for planting materials, and set up a Plant Varieties & Farmers' Rights Protection (PVP) Authority. The salient provisions are:

- Establishment of a National Seeds Board, for registration, and monitoring of varieties

- Establishment of Seed Certification agencies to be owned by state governments
- Registration of seed processing units and minimum standards for import and export
- The registration of new plant varieties by the PVP Authority will be based on the criteria of novelty, distinctiveness, uniformity and stability.

However, a few important provisions that are significant to the international business are:

- The rights of farmers to save, use, exchange, share or sell farm produce
- Equitable sharing of benefit arising out of the use of plant genetic resources that may accrue to a breeder from commercialisation of seeds/planting materials, and
- Compulsory licensing powers over a protected variety in public interest

Biotechnology

Approvals involving transgenics/ GMOs is closely scrutinized and monitored by Department of Biotechnology, Ministry of Science and Technology. There are six competent authorities, each with jurisdiction over a particular aspect of biotechnology. The process of obtaining approvals for recombinant research can be excessively tardy, as it involves securing approvals from several levels of committees, and eventually the Ministry of Environment and Forests before release. Monsanto's GM cotton took more than seven years to obtain the clearances for field trials, despite the successful use in several other countries.

Companies engaging in scientific research are allowed 150% rebate on own R & D expenditure, and 125% rebate if research is contracted in public funded R & D institutions.

Tax regime

Agricultural equipment in general attracts 30% import duty. However certain equipment, including cold storage and refrigeration equipment have a higher customs duty, ranging from 50.8% to 68.9%. The effective customs duty on vegetable and fruit seeds is 5% (14.4%) and on all other seeds it is 15% (35.2%).

Projects (including plans of multi-lateral or bilateral institutions)

The Agricultural and Processed Food Products Export Development Authority (APEDA) is promoting Agri Export Zones (AEZs), aimed at integrated development of the entire value chain at one location, right from development of seeds and planting material, production, post harvest handling and storage, processing and packaging of value added products. Till date, 15 AEZs have been approved, and several proposals are under consideration. Recently, the government has allowed private sector operators to develop AEZs, and has allowed foreign participation as well in line with other infrastructure projects.

The involvement of multi-lateral institutions, such as The World Bank and Asian Development Bank, in the agriculture sector, is mainly in the field of irrigation development, agricultural extension and research projects in the economically weak states.

Investment & Business Opportunities

Biotechnology and Seeds: The role of foreign companies is expected to increase, irrespective of India's variance with international provisions on plant varietal protection. In fact, the lower level of IPR protection in India is an inducement for companies to set up Indian ventures in order to seek local protection as Indian entities, and to be able to monitor the market closely while taking advantage of the location cost advantages. The liberal foreign investment regulations including in recombinant processes allow for 100% owned subsidiaries in biotechnology activities, and many seed companies now have 100% subsidiaries in India. The new registration rules

on varieties will require pre marketing trials for new products as well, which are better executed in an ownership based structure.

Cold Storage and Refrigeration equipment: There are good opportunities for Dutch companies to tie up with Indian companies as India has an established base of domestic engineering companies having international technology tie-ups, which are able to provide solutions at competitive costs, especially given the high import duties. Engineering companies in the Netherlands interested in building cold store projects in India would need to consider local alliances including local fabrication in order to achieve competitive costs.

Airports and Airport Equipment

The Airports Authority of India (AAI), an organization within the Ministry of Civil Aviation, owns and manages, including air traffic control and equipment procurement (via global/local tenders), all the 92 airports and 28 civil enclaves at defence airfields, and provides air traffic services over the entire Indian airspace and adjoining oceanic areas. There are 449 airport/airstrips in India.

Traffic

Recent years have seen a dramatic increase in the levels of passenger and cargo traffic. This increase has placed a heavy strain on the four major airports and has highlighted the need for substantial investment to develop and expand the existing facilities. As an illustration the following are the current and forecast levels of passenger and freight traffic throughout India:

Domestic and international passengers

YEAR	NUMBER OF PASSENGERS
1970	5.1 million
1998-99	27 million
2001-02	40 million

Cargo

YEAR	FREIGHT TRAFFIC
1970	81,000 tonnes
1998-99	699,000 tonnes
2001-02	800,000 tonnes

In 2001-02, about 40 million passengers and 0.8 million tonnes of cargo (domestic and international both) were handled at all airports. The traffic has grown by more than 125% in the past ten years; national carriers Air India and Indian Airlines handled less than 25% of the business. Airports are an important commercial service for India given that 40% of India's

trade by value, and 95% of international travel to and from India takes place through this mode.

Future trend: By 2010, air traffic is expected to rise significantly, from the present 40 million to around 90 million. International air cargo exports from India are expected to rise from 0.8 million tonnes to 2.4 million tonnes while domestic cargo will rise from 300,000 tonnes to over 1 million tonnes. Domestic and international passenger traffic in India is projected to grow annually at 12.5 percent and 7 percent, respectively, over the next decade.

The forecasts also show the major Indian airports; in particular Delhi and Mumbai will face significant capacity constraints if they are to be able to handle the projected increases in passenger and cargo traffic. It is estimated that the present infrastructure can support a rise of only 20% in passenger traffic and 10% growth in cargo, indicating a possible saturation of Indian airports over the next few years.

Imports

Airports equipment					
8802	Aircrafts	116.58	37.77	148.99	118.19
8526	Radar apparatus, radio navigational aid…	4.53	12.88	14.9	23.19
8530	Electrical signalling, safety and traffic control eqpt.	0.62	4.93	2.52	2.56

This growth potential, coupled with the government's decision to privatize five key airports, makes India a very attractive market for airport and avionics equipment manufacturers and service providers. The liberalization of the Indian civil aviation market is expected to not only bring rapid increases in aviation capacity and improvements in service quality, but it will also present foreign firms with significant export and investment opportunities.

Existing domestic airports also require significant infrastructure improvements, in areas such as runways, air traffic control, communications, navigation, ground handling, air terminals etc. The AAI has plans to upgrade and modernise its other airports and in particular to upgrade its navigational and communications aids.

Origin of Imports 2001-02 (top three countries and The Netherlands), US$ million

Code	Country 1	Country 2	Country 3	Netherlands
Aircrafts	France 76.65	USA 37.93	Canada 3.60	 Nil
Radar apparatus, radio navigational aid…	Germany 4.91	Israel 4.07	Russia 3.73	 0.13

Germany has been the leading supplier of construction and airport equipment to India. The share of Netherlands has been negligible.

Foreign Direct Investment

There has been insignificant foreign investment in the infrastructure sectors, on account of restrictions in foreign investment in some segments and procedural and operational issues in others.

In the aviation sector, specific regulations are being re-formulated for foreign investment in management, maintenance and upgradation of airports to include lease and ownership options. However, there appears to be internal disagreement on the desirability of privatization of this segment, which is considered sensitive by some stakeholders.

Government Policies

Airports

- Foreign equity (including by foreign airport authorities) in financing airport infrastructure is permitted up to 100%. FDI up to 74% is approved through automatic route.
- The government has decided to allow 49% FDI in airport ground handling, to permit inflow of technology and investments. The clearance for foreign investment in this area would be done on a case-to-case basis, foreign investors will have to form joint ventures with the Airports Authority of India, Indian Airlines or Air-India to enter the segment.
- The government allows up to 40 per cent foreign equity in domestic air carriers. However, no direct or indirect equity participation by foreign airlines is allowed.
- Non-resident Indians and corporate bodies are allowed to hold up to 100 per cent equity in domestic air transport services.

Civil Aviation

Over the last few years, there have also been significant changes in India's bilateral air services policy, aimed at enhancing the availability of capacity for international traffic. Accordingly, the government has re-negotiated the existing bilateral agreements or has entered into fresh new bilateral agreements with a number of countries. Consequently, the capacity on international routes has gone up to approximately 3.3 million seats per annum.

In addition, the government has allowed new points of call for foreign airlines and agreed to the utilization of the Indian landing entitlement in other countries by foreign carriers on mutually beneficial terms. For cargo operations, India has an open-skies policy. All foreign airlines are allowed to operate cargo services without any restrictions. For chartered flights, the government has been gradually liberalizing the conditions for allowing such flights at a larger number of airports. Except for popular destinations like

Goa, Jaipur, Agra, etc., charters are now permitted to fly Indian nationals as well.

Privatization

Private sector is allowed to operate scheduled airlines in the domestic sector. Private sector participation is also allowed in airport modernization, ground services, and aircraft manufacture.

The government is planning to privatise the operation and management of the four international airports at Delhi, Mumbai, Chennai and Kolkata to private operators. These airports handle significant amounts of both passenger and cargo traffic. Modalities for inviting offers from private investors (Air Traffic Control will remain the responsibility of the AAI) have been finalized and the leasing process (lease period 30 years) is expected to be completed shortly.

Private participation is also being sought for two other significant airport projects - Hyderabad and Bangalore. Several other State Governments have initiated plans to develop international airports, although these are still at a very early stage. Private participation in green-field airport projects is being encouraged through a package of concessions. These include acquisition of land by state governments, levy of user development fee at new airports and equity participation by the AAI.

However, the Government's mega exercise to privatize and modernize the international airports in Delhi and Mumbai has run into trouble, as the major airport developers from across the globe have expressed reservations about investing in the project. This is due to the government's decision to keep ground handling activities at the airport to itself, which is estimated at Rs 5000 million (Euro 100 million) per year. According to developers, it is surprising that on the one hand the Ministry is talking of privatizing the airports and on the other wants to keep the activities to itself. As the duty free shops are already held by ITDC and now the ground handling

would be done by government agencies, developers may be reluctant to invest in this sector. The promoters short-listed for the privatization projects have argued that the Government decision to restrict the ground handling to the PSUs, would affect the revenue generation of the proposed projects.

Interestingly, even the three parties appointed by the government — Indian Airlines, Air-India and Airports Authority of India — do not undertake most ground handling activities themselves. IA has outsourced most of the activities at the ramp and baggage X-Ray for both its domestic and international flights to a host of private firms like Neha Enterprises and Arun International. Even A-I has sub-contracted some of the activities to a third party — Livewell Aviation. As for AAI, the firm has no prior experience at all in ground handling.

In view of the above, there are reports that the Government is reconsidering the issue and may allow foreign players for ground handling at green field airports such as planned at Hyderabad and Bangalore. The issues notwithstanding, the Government is confident that things would finally start rolling in the near future and the new airports would be in place within two years.

Other steps envisaged by the government to attract private participation in the sector, are:

- Rationalization of various charges and price of ATF/AVGas will be undertaken to render operation of smaller aircraft viable so as to encourage major investment in feeder and regional air services by the private sector.
- Training Institutes for pilots, flight engineers, maintenance personnel, air-traffic controller, and security personnel will be encouraged in private sector.
- Private sector investment in non-aeronautical activities like shopping complex, golf course, entertainment park, aero-sports etc. near airports will be encouraged to increase revenue, improve viability of airports and to promote tourism. CAA will

ensure that this is not at the cost of primary aeronautical functions.

Tax regime

- The customs duty on most of the imported equipment for the sector is 50.8%. However, it is higher on radar apparatus and radio navigational aid for airports 56.8%. On aircrafts, the import duty ranges from 7.12% to 35%. However, notified projects attract customs duty exemptions and concessions, depending upon the equipment specifications and proposed end-use.

Projects (including plans of multi-lateral or bilateral institutions)

New international airport in Delhi: Expected to come up within the next three years and the Indira Gandhi International Airport would be turned into a domestic airport.

Mumbai international airport: No new airport is planned for Mumbai due to paucity of space, but expansion and upgradation of the current facility is planned. The Mumbai project will cost an estimated Euro 457 million.

Bangalore International Airport: Work has commenced and is expected to be operational by end 2005. The issue regarding concession fee for the Rs 1,300-crore (Euro 250 million) green-field airport has almost been sorted out by the Finance Ministry.

Hyderabad Airport: Strengthening of runway for operation of wide-bodied jet aircraft has been taken up and is likely to be completed during 2004-05, at a total cost of Rs.70 crore (Euro 14 million). However, the other project - a new international airport at Shamshabad, 20 km from Hyderabad, will take some time. Besides financial hurdles, this project ran into rough weather due to the presence of a defence space laboratory within 20 km radius of the airport that would have interfered with air traffic signals.

Raja Sansi International Airport, Amritsar: Upgradation of the airport is being speeded up and the work is already underway to turn the Srinagar airport into a world-class facility.

Vishakhapatnam Airport: Action has also been initiated for construction of a new runway of 10,000 feet length, civil and naval apron along with ground lighting facilities and Instrument Landing System (ILS), at an estimated cost of Rs.158 crore jointly by Indian Navy, Airports Authority of India and State Government of Andhra Pradesh After completion, wide bodied aircraft would be able to operate on international sector also in all weather conditions.

Dehradun Airport: The project for upgradation of Dehradun Airport is likely to be taken up once the land availability problem is sorted out by the State Government of Uttranchal. The project outlay of Rs.64 crore (Euro 13 million) will allow B-737/A-320 type aircraft to operate. The operation of these aircrafts will give boost to development of tourism and economy in the area.

Kochi International Airport Project: The project is expected to cost around Euro 45.7 million in the first phase, and to increase to around Euro 85.7 million by completion.

Parallel Cargo Terminal at IGI Airport, Delhi.

The AAI has drawn up a Euro 1.1 billion plan to modernize and expand its airspace management and infrastructure to meet the growth in demand projected for the next five years.

Equipment: The Ministry of Civil Aviation has plans to upgrade equipment at various airports to meet International Civil Aviation Organization (ICAO) standards. The CNS/ATM (communication, navigation, surveillance/air traffic management) systems are proposed to be introduced on priority are: Satellite based CNS system, Differential Global Positioning System (DGPS), Automation in the Air Traffic Control Services, and Automatic Dependent Surveillance (ADS), etc. In 2003, a budgetary allocation of **Euro**

2 billion has been made for renovation/modernization of two airports (Delhi and Mumbai) and two seaports.

Investment & Business Opportunities

The current scenario and the projected developments in infrastructure generate opportunities for the following:

- Supply and financing of airport equipment
- Participation in airport service contracts

Aircraft acquisition: It is now more than a year since the Indian Airlines board cleared its proposal and forwarded it to the Government for clearance. However, despite the pre-Public Investment Board (Pre-PIB) meeting proposing that the Indian Airlines decision be sent up to the PIB for clearance, there seems to have been little or no movement.

It seems to be almost an identical case with Air India. The Board accepted a proposal to purchase 10 Medium Capacity Long Ranger (MCLR) aircraft with the option of purchasing another seven, earlier this year. Air India shortlisted the Boeing 777-200 Extended Range (ER) aircraft and the Airbus A-340. But since that decision, there has been no forward movement.

The Air India fleet acquisition proposal was expected to get a major push after the last board meeting in Mumbai in July 2003 when a decision was expected on the Small Capacity Short Range (SCSR) aircraft. However, the Board decided to further examine the proposal. It is believed that, unlike Indian Airlines, Air India will not require funds from the Government to go in for purchases. So it is expected that the deal should be cleared fast.

Leasing of Aircraft: The Indian Airlines board had earlier cleared the proposal of acquiring 43 aircraft in March 2002 on the grounds that a capacity increase was necessary due to stiff competition being faced by the airline from private players. At present, the carrier has 13 aircraft on dry lease, which include eight Airbus A320s, four ATRs for its Northeast operations and one Airbus A-300. The airline is also expecting three Airbus A-320s on dry lease in the next two months. As the aircraft

acquisition process had been considerably delayed, Indian Airlines board approved in June 2003 the setting up of a committee that will look into the domestic carrier's plans of taking more aircraft on lease. The board also approved the setting up of a wholly owned subsidiary for carrying out ground handling activities.

Specific opportunities

Ground Handling Equipment/Systems Passenger & Cargo:

- Integrated Cargo Building Automation Project Delhi
- Passenger baggage conveyor systems in international airports Delhi and Amritsar
- Runway Marking Machine Domestic airports in India
- Runway Cleaning Equipment All airports
- Ground Safety equipment (including fire tenders, fire tiller pumps, breathing apparatus etc) All airports
- Airport security equipment including CCTV, perimeter security equipment, smart cards etc Delhi & Mumbai
- X-Ray baggage security screening equipment (various airports)
- Non-directional Beacons (various airports)
- Passenger Baggage Trolleys with automatic parking brakes- (various airports)
- Flight Information Display System New Delhi & Kolkata
- Grass Cutting Equipment (various airports)

Air Traffic Management Equipment & Services

- Radar Simulator with voice recognition & synthesis system - Allahabad
- Voice Control Communication Systems (VCS) for Delhi & Mumbai and ten other regional airports

Commercial Development:

- Commercial development of unused land. This is at an early stage and is linked to the architecture/design improvements tenders- Delhi & Mumbai and also for the non-metro airports.
- Duty free outlets at all the international airports:

- Duty Free shops at Guwahati, Jaipur, Lucknow & Amritsar
- Jewellery shops at Lucknow, Bangalore and Jaipur
- Engagement of International Architectural design & consulting firm for designing International airports

Biotechnology

Biotechnology is India's latest pursuit for domain expertise in knowledge-intensive sectors. In recent years, this sector has seen the active interest and involvement of industry, academic institutions and government, with a vision of attaining global competitiveness and attracting global investments into India.

The Indian biotech industry is as well at a nascent stage, consisting of nearly 150 companies, of which more than three-fourths have emerged in the last five years. However, there are only about 15 companies that are active in modern biotech segments. India's biggest achievements in modern biotechnology in the past five years are: the development of a recombinant Hepatitis B vaccine, a world patent for solid state fermentation called plafactor, and the successful introduction of Bt Cotton.

The government has been the biggest investor, having invested more than Rs 10 billion in various public research institutions, since the creation of the Biotechnology portfolio in the Ministry of Science and Technology.

The current market for conventional and modern biotech products is in the region of US$ 1.5 billion. Human health biotechnology products account for 60 percent of the total market; agri-biotechnology and veterinary-biotechnology together account for 25 percent; medical devices, contract research and development (R&D), reagents and supplies constitute the remaining 15 percent and estimated to be less than US$ 150 million.

However, the relevant market for **modern biotechnology products** and services, i.e. products involving recombinant processes, is much smaller, estimated at US $ 150 million. This segment is expected to grow at an average annual rate of 35-40 percent.

Table 2 India's Biotechnology market *($ millions)*

Description	2000	2005*
Animal and healthcare products		
- Vaccines	150	300
- Antibiotics	225	275
- Other	200	350
Agricultural products		
- High yielding and Genetically	450	650
Modified seeds	100	200
- Other		
Industrial products		
- Amino acids, organic acids	150	200
Yeast and yeast products	150	250
Other	50	100
Total	1475	2325

Source: Biocon India * Forecast

Principal sub-Sectors

Healthcare

In India as well, the pharmaceutical industry has been one of the first to reap the benefits of biotechnology. Human health biotechnology products accounts for 60 percent of the domestic market. The pharmaceutical biotechnology based products with the largest market share are bio-drugs, vaccines and diagnostics

Vaccines

The domestic vaccine market is currently in the region of $100 million and this is growing at the rate of more than 20% per year. Major multinational pharmaceutical companies active in the vaccine businesses in India include SmithKline Beecham, Hoechst, Glaxo Wellcome and the Serum Institute. In addition, Shantha Biotechnics manufactures a recombinant HBsAg vaccine (Shanvac B), at a cost of

approximately $5 per dose. This is the first such genetically engineered product from any category in India.

Diagnostics

The market for diagnostics in India stood at about US$ 100 million. Around 50% of the demand is met by imports. There is an increased consumption of diagnostic devices and tests in public hospitals. There are more than 11,500 hospitals and 14,000 diagnostic laboratories in India that consume large volumes of diagnostics.

Recombinant Therapeutic Proteins

Recombinant technology uses enzymes to cut and paste fragments of DNA in order to make chimeric/recombinant DNA molecules, which can be inserted together with a vector be replicated and harboured in a host organism. Bio-drugs or recombinant DNA therapeutics are expected to be more effective than chemical drugs in specific cures for diseases like cancer, AIDS and tuberculosis, and are the focus of pharmaceutical research worldwide.

The Indian market of approved recombinant therapeutics is estimated to be about US$ 109 millions, which represented 3.2 % of the total Indian pharmaceutical market, and 1.6 % of the world market for recombinant therapeutics

Human gene therapy

Human gene therapy offers exciting possibilities to the healthcare and pharmaceuticals industries. It allows genes to be used as drugs to correct hereditary disorders. Reliance Life Sciences, an Indian firm, is one of the ten companies worldwide that have colonies of human embryonic stem cells, which are eligible for research with US government funds. Reliance Life Sciences has seven lines of stem cells and is working on four of them. The company is also setting up one of the largest cord-blood repositories in the world as part of the cell biology center.

Agricultural Biotechnology

India does offer a huge market for agri-biotech products. Indeed India's economy is still heavily dependent on agriculture. The domestic market potential, combined with scientific infrastructure in agriculture, rich bio-diversity and skilled human-power can make India an important global base for agri-biotechnology research.

In India, research on transgenic plants has been in progress in several government and private laboratories, but only one has been commercialized so far. Monsanto's 'Bollgard®' *Bt*-gene, introduced by Monsanto-Mahyco (Maharashtra Hybrid Seed Company) into the Indian cotton hybrids by backcrossing with a transgenic line, was cleared for commercial use in 2001, after seven years of trials at various levels.

Overall investment in GM products has been insignificant, estimated to be less than Rs 500 million during the past ten years, of which more than 75% has been from government funds. However, the experience of Monsanto has accelerated investments in several other projects, and the investment levels are rising rapidly.

Bioinformatics

Bioinformatics deals with the application of computing techniques in biotechnology research, especially in the deciphering of complex biological information from molecules, cells and DNA patterns. There is a critical need to assemble this enormous load of information in to accessible and analyzable form, through the use of algorithms, which is the focus of bioinformatics.

However, harnessing of the opportunity poses several challenges, especially in the area of human resource development. Bio-informatics needs to be essentially a biological specialization supported by IT, and not the reverse, as is being made the case in India. It requires the development of professionals possessing a

multi-disciplinary mindset — those equally at ease with biology, chemistry, mathematics, and computer sciences – which is rare to find. The scope of bioinformatics services is growing beyond data mining and DNA sequencing, which can be performed by high-speed computers.

The real challenge is in the ability of firms to offer the full range of DNA sequencing, protein engineering, molecular design and tracer identification, which shorten the lead-time for new chemical synthesis. Meanwhile, the revenues from pure DNA crunching have fallen drastically- from $ 5 a pair in 1998 to less than 5 US cents in 2001. On the other hand, drug majors pay nearly 20% of drug revenues as royalties on licensed products and technologies discovered other, smaller but specialized drug research firms. On the supply side, there is the need to design a specific curriculum at the graduate and higher levels, in universities, working in close coordination with needs of the industry. This may need the technical support from institutions in other, developed countries.

Opportunities

India already has developed competence in selected areas that provide the ground conditions to set up a competitive biotech industry in certain areas, especially products that have a growing domestic demand in India.

- *Vaccines*

India's huge population makes it among the world's largest markets for vaccines of all types. India faces a growing demand for new-generation and 'combination' vaccines, such as: DPT with hepatitis B, Hepatitis A with B, injectable polio vaccine, besides several veterinary and poultry vaccines.

Bioactive Therapeutic Proteins

Opportunities exist for speeding up production facilities, based on licensing and other forms of cross-border relationships for all therapeutic

products **approved for marketing in India,** namely Insulin, alpha interferon, hepatitis B surface antigen based vaccine, erythropoietin, streptokinase, and others, which **is expected to grow to US$ 200 mn in 2005.**

Agriculture inputs

Hybrid seeds, including genetically modified seeds represent new business opportunities based on yield improvement, and development of a production base in bio pesticides and biofertilisers would facilitate India's entry into the growing organic or natural foods market.

Contract Research

The cutting edge of the biotech sector is development of new products. Indian pharma companies possess competitive skills in chemical synthesis and process engineering, which they can leverage to develop new chemical entities, and with the application of bioinformatics tools, tap into the high-potential biogenerics segment. Under a positive IPR regime, the synergies in pharma- biotech relationships can be successfully turned into an opportunity for undertaking international contract research in segments of new drug discovery, clinical trials, and bioinformatics related services.

Clinical Trials

A large number of new NCEs under clinical testing are all products of rDNA, most of these emanating from small and medium sized biotech companies. With clinical trials in India costing less than one-tenth the levels in developed markets, clinical research organizations can seek research and trial projects in India from international companies, provided they are able to demonstrate practices and follow procedures prescribed to meet international standards, especially the WHO prescribed Good Clinical Practices, and even take a lead by harnessing India's IT strengths to generate all their research reports and documentation in electronic form as is becoming mandatory.

Bio Informatics

Indian bio-informatics companies can play a significant role in critical areas such as data mining, mapping and DNA sequencing, besides functional genomics, proteomics and molecule design simulation in the $ 2 billion world market for bioinformatics services. Complex algorithm writing and the use of computational capacities to study the 3D structures of proteins are the main skills brought into play in this segment.

Infrastructure Support Institutions

The growing interest in outsourced research and the emergence of start ups has led to a demand for industrial parks, containing a large number of shared facilities for research and development, most suited to start ups and contract research activities. Key facilities include clean rooms, gas pipelines, filtered air, wet labs, high-end computers for bioinformatics and protein modeling studies, besides customs clearing, patent facilitation related administrative support. Such parks also provide opportunities for international cooperation.

Role of Governments

Some state governments, notably Karnataka, Tamil Nadu, Andhra Pradesh, and Maharashtra have taken initiatives to encourage entrepreneurs to set up biotech industries in their States. Some of the key steps taken by the State Governments include: announcing separate Biotechnology Policy for their States, setting up of exclusive Biotechnology Parks, setting up of Task Forces with experts to guide them on policy issues.

Issues related to investment, trade and business co-operation

a. Competitiveness of each sector

India already has developed competence in selected areas that provide the entrepreneurs an edge over other countries to set up viable and competitive biotech industry in certain areas.

The areas of competence in India in the context of biotechnology are as under:

i. Capacity in handling sterile fermentation processes
ii. Skills in handling microbes and animal cells
iii. Capacity in downstream processing and isolation methods
iv. Skills in extraction and isolation of plant and animal products
v. Competence in plant and animal breeding
vi. Infrastructure in fabricating bioreactors and processing equipment

Biotech facilities available in India include:

- Supply of experimental animals from Animal Facilities (Lucknow and Hyderabad)
- DNA sequencing facilities (Delhi, Bangalore)
- Isotope Ration Mass Spectrometer (Bangalore)
- Repositories of germplasm and accession lines, of crops, microbes, marine germplasm, medicinal plants, etc. (Delhi, Chandigarh, Tiruchirapalli)
- Bioinformatics Information Network (57 centres all over India)

b. Human resources

Human resource development is a key factor in the future growth of biotechnology.

At present, India holds a capacity of less than 700 post graduate students spread over the various segments- agriculture, vaccine research, neurosciences, brain cell research, etc. Realizing the need to bridge the enormous gap in availability of trained personnel, many states have moved to expand the programmes at important universities, besides setting up specialized institutes.

c. Financing

Contrary to the US where the primary and venture capital markets provide most of the development fund for biotech research, government sponsored research is a major component in Europe and even more important in Asia, with Singapore and India revealing government as the largest investors in the sector.

Availability of funding for start-ups has been identified as a key issue for the promotion of biotechnology activities in India. According to the industry, business plans of the present players call for an investment in the region of US$ 500 million, of which only $ 100 million have been tied from various sources. Promoter equity and venture capital assistance from Indian financial institutions account for a large share of the assistance at present. The principal institutions in the sector have been venture capital arms of Indian financial institutions, notably ICICI Ventures, ICF Ventures, UTI Ventures, and Sidbi.

Venture capital assistance, estimated to be less than $ 10 million until 2001, has been much below expectations. Reasons for the low interest level by private and overseas venture funds include a rationalization of exposure after the dotcom bust, and the inherently "high- risk" perception of biotech research, given its open-ended revenue models that make purely commercial decisions difficult. Also, in India, biotechnology was still shrouded in controversies regarding its benefits and ethical aspects. Sartorius Ag, Germany is among the larger venture investors in India, and has invested US$ 0.75 million in biotech start-ups, and has also announced stakes in a biotechnology park in Tamil Nadu.

A host of big names including Connect Capital, ING Barings, Dresdner Kleinwort Benson, Chrysalis Investments, Sartorius AG and Warburg Pincus are evaluating biotech companies for private equity in second-level funding, i.e. beyond the pure start-up stage.

d. Intellectual Property Aspects

Intellectual property is a central issue in the biotechnology industry, and brings in a serious dimension in facilitating collaborative activity, whether for drug discovery, clinical trials or for market-related trials. The essence

of the argument for collaborative activity is the synergy between India's ability to provide conditions for research, trials and development, and technological lead and capital availability in Europe. The successful translation of these synergies into commercial applications and marketable products critically depends on the compatibility of regulations that deal with the registration and protection of intellectual property originating from the collaborative process.

Business leaders are in agreement that a robust intellectual property rights framework is the need of the hour for India, and that the government needs to put in place a transparent, best-in-the-class regulatory body that at the minimum meets the international patent laws. A key concern raised by some players is the process of formulating the regulations, which takes in representations from a cross-section of actors, but remains a virtually 'closed-doors' process within the government.

Given the serious disparities in India's stand on patentability of living organisms, it is anybody's guess whether the post 2005 treatment of biotechnology would accord IPR status to new recombinant products and even recombinant organisms having useful commercial value in bio control, environment protection, or even efficient culture media for vaccines. There are few public debates on this aspect, even as India repeatedly confirms its accession to a product patent regime by 31.12. 2005.

India, being already a member of the Paris convention, Patent cooperation treaty, Berne convention, Convention on biological diversity and WTO, should also make its legislation clear on the criteria for the patentability of biotechnological inventions, and ideally align with the disclosure and depository provisions of the Budapest Treaty, which provides protection of all **microbial genetic resources** MGRs deposited with an "International Depositary Authority" (IDA) in all of the States that are party to the Treaty.

Indian IPRs regulations, also need to consider two very important issues: "Database rights", a directive that had come into force in Europe for protection of databases, and the protection of India's traditional knowledge/ indigenous knowledge in the field of pharmaceuticals.

However, India has successfully legislated its *sui generis* **Plants Variety Protection and Farmers Rights Bill,** which would benefit India's large agriculture sector and the sunrise biotechnology sector as well. However, the Biodiversity/Benefit Sharing Bill, which deals with the public right and ownership and hence non patentability of traditional knowledge and biodiversity resources, is still pending in the Parliament

Analysis of the regulatory policy concerning the sector

a. Indian administrative bodies

The regulatory environment in biotechnology involves the interplay of several administrative ministries, given the cross-sectoral implications of biotechnology. In the present state of affairs, there are six regulatory bodies, of which one or more deal with any aspect of biotechnology in the country. These are:

- *Department of Biotechnology, Ministry of Science and Technology* – which is the administrative body for regulatory approvals for investment and technology activities in the sector
- *Drug Controller General of India, Ministry of Health* – which is the official regulatory body governing manufacture and commercial release of pharmaceutical products, including recombinant products
- *Genetic Engineering Approvals Committee*, *Ministry of Environment and Forests* – which deals with biosafety aspects and is the regulatory authority for trials and commercial release of all GMOs
- *Ministry of Chemicals and Pharmace*uticals– which is the administrative ministry for the chemical and pharmaceutical industry and governs industrial regulation and foreign investment in these sectors (enzymes, pharma, industrial biotech products, etc)
- *Department of Animal Welfare– Ministry of Health*, which deals with the protection of animal rights and use of animals for scientific research experiments

- *Department of Agriculture Research and Education, Ministry of Agriculture*- which deals with all field research in agriculture crops

Besides these apex authorities, several bodies are involved in administering the regulations, such as the National Pharmaceutical Pricing Authority of India, the Review Committee on Genetic Manipulation, Institutional Bio Safety Committee, and Institutional Animal Ethics Committee.

b. Industrial licensing:

The investment and industrial policy has been liberalized in the sector.

- 74% foreign equity investment is automatic in Drugs and Pharmaceuticals sector, and over 74% is on case-by-case basis
- However, any proposals involving recombinant DNA processing or marketing of products using rDNA processes require prior approval
- Some drugs are subjected to national price controls (insulin is one of them)
- Wholly owned foreign subsidiaries are allowed in research and development activities**, but not in purely trading or marketing activities**

Fiscal incentives:

- Companies engaging in scientific research are allowed 150% rebate on own R & D expenditure, and 125% rebate if research is contracted in public funded R & D institutions

c. Trials using Genetically Modified Organisms (GMOs)

Research on GMOs is closely scrutinized and monitored by the DBT (Department of Biotechnology), Ministry of Science and Technology, Government of India. The DBT administers various stages of trials through several tiers of approval ad monitoring bodies, which comprise experts from various fields. The rules mandate the creation of six competent authorities, each with jurisdiction over a particular aspect of biotechnology. These are: the Recombinant DNA Advisory Committee, the

Review Committee on Genetic Manipulation, the Institutional Biosafety Committee, the Genetic Engineering Approval Committee, the State Biotechnology Co-ordination Committee, the District Level Committee.

The research and commercialization of genetically modified products in India follows a three-tier system.

- IBSC (Institutional Biosafety Committees): All the details about experimental protocols such as toxicity alergenicity and environmental Biosafety are decided and looked upon by a group of experts appointed under IBSCs for each project. After scientists have carried out lab experiments, it is the turn of small-scale containment experiments followed by a large-scale open field experiments.

- The RCGM (Review Committee on Genetic Manipulation) looks at all the details and gives the permission to carry out **very small-scale field experiments under containment**. Thereafter, with the help of the ICAR (Indian Council of Agricultural Research), the DBT (Department of Biotechnology), Government of India, has instituted another committee called the Monitoring cum Evaluation Committee checking the process of experiment. This committee's report is again looked at by the RCGM.

- The third tier is the GEAC (Genetic Engineering Approval Committee), under the Ministry of Environment and Forests, which grants permission for large-scale field trials. Commercial release of a variety is permitted only after it has gone through all the norms, is proven to be performing better or at par with the existing national check variety besides having the gene of interest.

However, India's capacity to deal with the problems associated with genetically modified plants is **limited by the shortcomings in the structure of the relevant law and institutional constraints**.

d. Marketing of Imported Drugs:

The Government has amended the Drugs and Cosmetic Rules, 1945 streamlining procedures for approval for manufacture and import of new drugs. **Schedule Y to the Drugs and Cosmetic Rules,** which prescribe requirements and guidelines on clinical trails for import and manufacture of new drugs, has been amended in 2001 to make **Post Marketing Surveillance (PMS)** study mandatory for all imported products.

However, the Schedule also contains an amendment **that no clinical trials for a new drug, whether for clinical investigation or any clinical experiment by any institution shall be conducted** except under the permission from the Drugs Controller General of India, which may be felt as an unnecessary restriction on cross-border, contract clinical trials.

e. Clinical Trials using animals

India's Prevention of Cruelty to Animals Act, 1960 governs activities concerning trials on animals for research, for which a Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) has been constituted. Institutional research on animals is monitored by the Institutional Animal Ethics Committee, which has members nominated by the head of the institution concerned; and one nominee of the (CPCSEA). This has led to a controversy between the pharmaceutical companies and scientists on one hand and the CPCSEA on the other, leading to delay in research and production

Environment & Environment Technology

National concern on environment has increased substantially in the 1990s, and the Government as well as NGOs have been actively canvassing on issues relating to pollution. Even major power projects like Enron and Cogentrix (Cogentrix eventually withdrew from India), faced enormous hurdles in procuring environmental clearances, which demonstrates the degree of importance attached to the subject today.

Environmental degradation is reaching serious dimensions in India's most important cities. India's three largest cities are among the world's ten most polluted cities, Delhi being the most polluted of these with 500 mg /cu.m with particulate levels, against the prescribed threshold of 240 mg/cu.m. Ambient air quality trends in the major cities indicate levels of suspended particulate matter higher than the prescribed limits, especially in summer months. Nitrogen dioxide levels are steadily increasing in urban centres with growing vehicle emissions.

The major causes of degradation in other parts of India are:

- Organic waste, industrial waste, chemical fertilizers and pesticides
- Chemical effluents affecting the atmosphere, soil and water
- Hazardous chemical waste into land fills
- Deforestation caused by wanton felling of firewood and timber.

While there is a well-laid out Government Policy on Environment, stringent implementation of regulations has not been possible at the ground level due to the widespread nature of the problems and the absence of any interim solutions without disrupting essential economic activity.

Wherever drastic action has taken place, it has often been under the strict orders of the Supreme Courts issued in public interest. Indeed, the ban on polluting vehicles in Delhi, the dislocation of polluting kilns near the Taj Mahal, and the ban of all timber felling in the North

East areas, have been landmark rulings by the apex court on public interest litigations filed by environmentalists and NGOs.

The Government aims to integrate environmental considerations into decision making at all levels, through the following tenets:

- Prevent pollution at source
- Encourage, develop and apply the best available practicable technical solutions
- Ensure that the polluter pays for the pollution and for pollution control arrangements
- Focus protection on heavily polluted areas and river stretches
- Involve the public in decision-making.

The Government has based its environment protection programme on the following planks

1. Identification of critically polluted areas and cohesive action to abate present pollution levels in industrial clusters
2. Setting up of stricter standards for pollutant concentration and promote recycling of waste, and minimize natural resource usage and insistence on source-based containment and prevention systems
3. Introduce mandatory environmental audit for local bodies, and corporations, to regulate their effect on the environment
4. Fiscal measures such as incentives for installation of pollution control equipment, and for shifting of industrial locations

The Ministry of Environment and Forests is the nodal agency in the administrative structure of the Central Government for the planning, promotion, coordination and overseeing the implementation of the various environmental and forestry programmes. The Ministry has also been designated as the nodal agency in the country for the United Nations Environment Programme (UNEP), International Centre for Integrated Mountain Development and looks after the follow up of the United Nations Conference on Environment and Development (UNCED).

Conservation and survey of flora, fauna, forests and wildlife, prevention and control of pollution, afforestation and degeneration of

degraded areas and protection of environment are the mandates of the Ministry. These objectives are well supported by legislative and regulatory measures, which are aimed at the preservation and protection of the environment Some of them are Air (Prevention & Control of Pollution) Act, 1981, the Water (Prevention & Control of Pollution) Act, 1974, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, the National Environment Tribunal Act, 1995.

Prevention and Control of Pollution

Major steps were taken for nation wide pollution prevention plan, particularly with reference to combating vehicular pollution, pollution control in 17 categories of highly polluting industries, implementation of action plans for restoration of environmental quality in critically polluted areas, noise pollution control and proper management of solid wastes, hazardous wastes and bio-medical wastes.

Industrial Pollution

State Pollution Control Board has surveyed these areas and action plans have been prepared for 16 areas out of total 19 areas identified to implement pollution control programs. Heavily polluting industries have been identified for relocation from urban areas and are being shifted out/ closed down in cities like Delhi and Bombay. Industries polluting air are cement, thermal power plants, iron and steel, fertilizer; zinc smelter, copper smelter, aluminum smelter and oil refinery. Industries polluting water are distilleries (i.e. fermentation), fertilizer, pulp and paper (large and small), basic drugs, dyes and dye intermediates, pesticide manufacturing, oil refinery, petrochemicals, clusters of tanneries, sugar and pharmaceuticals.

In 17 categories of identified highly polluting industries, as on 31.12.99, out of 1551 industries 1284 have been provided the

necessary pollution control facilities, 153 industries have been closed down and remaining 114 industries, declared as defaulters.

Vehicular Pollution

The Ministry of Surface Transport has notified more stringent emission standards known as Bharat Stage II similar to Euro II emission standards for registration of motorcars and four wheelers. Only unleaded petrol is supplied in all retail outlets of the entire country with effect from 1.2.2000 and 0.25 % sulphur in diesel. Vehicular emission monitoring was conducted and it was revealed that 89.5 % two wheelers and 85 percent of the four wheelers were complying with the prescribed carbon monoxide standards.

In Delhi, stringent steps have been taken to combat pollution:

- Any vehicle of more than 15 years & used for commercial purpose shall not be allowed registration
- Ban of leaded petrol and introduction of unleaded petrol for all vehicles.
- Promote the use of CNG as a pollution free fuel for all vehicles

Emission standards for new generator sets (up to 19 KW) run on petrol and kerosene were finalized and notified during the year. Noise standards for stationary diesel generator sets (15-500 KVA), notified during January 1999, were implemented.

Water Pollution

The Central pollution Control Board has been monitoring water quality of national aquatic resources in collaboration with concerned State pollution Control Boards at 507 locations. Out of these 414 stations are on rivers, 25 on ground water, 38 on lakes and 30 on canals, creeks, drains and ponds etc.

For protection of polluted areas and river stretches, critical-areas, sectors, industries, pollutants, and river stretches have been identified. Critical pollutants identified are lead, mercury, pesticide, carbon monoxide, sulfur dioxide and asbestos (air pollutant). A scheme on setting up of Common Effluent Treatment Plants (CETPs) in cluster of small-scale industries had been undertaken in the country under a World Bank Scheme on Industrial Pollution Control. So far, 88 CETPs have been approved for providing financial assistance.

In India the label known as 'Ecomark' is awarded to consumer goods meeting the specified environmental criteria and the quality requirements of Indian standards. Since 1991, Ecomark criteria for 16 product categories covering approximately 450 products have been finalized and notified.

Government Policy and Incentives for Pollution Control Projects

- Subsides upto 50% of capital costs and Soft loans at liberal interest and ten year periods for Common Effluent Treatment Plants (CETP) set up by an industrial cluster
- Low excise duty of 5% on a list of equipment purchased for pollution control
- Depreciation allowance upto 100% for specified anti-pollution devices for tax purposes
- A rebate on water access charges and cess to firms having pollution control facilities
- National Awards have been initiated for industries making significant contribution towards development and use of clean technology, products or parks that prevent pollution and finding innovative solutions to the environmental problems
- Foreign investment is allowed up to 74% in any industrial or service venture through the automatic approval route

Government programmes relating to Kyoto Protocol and Climate Change Policy

In 2001-2002, India ratified the Kyoto Protocol, which was adopted in 1997 committing the developed countries to reduce their emissions of greenhouse gases by an average of 5.2% during 2008-2012 with reference to 1990 level of emissions. The ratification was a reaffirmation of India's commitment to strengthening global endeavor to combat climate change in accordance with the principles of the Conventions.

India hosted the Eighth Conference of the Parties to the United Nations Framework Convention on Climate Change, in which over 4300 delegates attended from all over the world, making it one of the biggest international events of its kind ever held in the country. Parties agreed on the rules and procedures for the Executive Board of the Clean Development Mechanism under Kyoto Protocol, as well as simplified procedures for small-scale projects. The Conference concluded guidelines for reporting and review under Kyoto Protocol after three years of intense negotiations. It adopted the New Delhi Work Programme for five years relating to education, training and public awareness and also set a time frame for operationalization of the Special Climate Change Fund by 2003. Most importantly, the Conference adopted the Delhi Ministerial Declaration, which firmly establishes the link between climate change and sustainable development and brings out importance of adaptation in this context.

An Inter Governmental Panel on Climate Change (IPCC), headed by Dr. R. K. Pachauri, Director General, Tata Energy Research Institute, was set up jointly by World Meteorological Organization (WMO) and United Nations Environment Programme (UNEP) in 1988 to assess the scientific, technical and socio-economic information relevant for the understanding of the risk of human induced climate change and is the most respected body involved in assessment of scientific basis; impacts, adaptation and vulnerability; and mitigation of climate change.

Six projects in the renewable energy sector were endorsed by India for implementation as Clean Development Mechanism Projects under the Kyoto Protocol. It is expected that implementation of these projects would help in attracting foreign investments in such projects in the country as well in accessing more efficient technologies. New scheme relating to climate change with the goal of raising awareness in the country about climate change, and providing impetus to adaptation and capacity building activities in the country were launched. Substantial progress was also made in the preparation of India's Initial National Communication to the United Nation Framework Convention on Climate Change including preparation of inventories of greenhouse gases of anthropogenic origin.

Bilateral Co-operation

India has signed bilateral MoUs/Agreements with nine countries, namely Austria, China, Germany, Iran, Russia, Tajikistan, Turkmenistan, USA & Vietnam, pertaining to general issues of environmental concern. Similar MoU is proposed to be signed with Israel.

Indo-European Commission

While education and health are the central areas, environment linkages as they pertain to these two sectors would be given priority by the European Union.
A workshop was held on 23rd September 2002 to finalise the five year cooperation strategy for India, one of the major elements of which is developing State level partnerships.

Indo-Finnish Joint Working Group on Environment

On 18th October 2002 delegations from the Finland Government and the Ministry of Environment and Forests, Government of India met in New Delhi for the first meeting of the India-Finland Joint Working Group on Environment. The meeting covered a wide array of areas while focusing on a few key identified environmental issues for

immediate action, which included areas such as paper and pulp, sustainable forestry, renewable energy under CDM. There was also exchange of views on Sustainable Development with India and Finland aiming at developing common approaches in key areas.

Environmental Research & Development

India has launched an Environmental Research Programme (ERP) especially for dealing with problems related to air, water and soil pollution and development of suitable cost effective technology for abatement of pollution. Emphasis is given on development of eco-friendly biological and other interventions for prevention of pollution, development of strategies/technologies, instruments etc. Projects are also encouraged for development of biodegradable plastics, epidemiological studies, ways and means to reduce impact of mining, chemical pollution of soils, hazardous substances including pesticides, heavy metals, etc. Waste recycling and resource recovery from waste along with development of eco-friendly and cleaner technology are given priority.

The ERP includes research projects on multidisciplinary aspects of environment and ecological protection, conservation and management at various universities, research and development institutions and reputed non-governmental organizations of the country. It is also proposed to train officials / scientists in India and abroad to familiarize them with R & D Management in Europe and USA.

India has taken up the task of preparation of State of Art Reports in 23 critical areas, which require immediate attention for promoting Research & Development.

Initiatives by Private sector organizations

Tata Energy Research Institute, a dynamic and flexible organization with a global vision and a local focus, was established in 1974. While in the initial period its focus was mainly on documentation and information dissemination activities, emphasis shifted to research activities in the fields of energy, environment, and sustainable development towards the end of 1982. Recently, TERI has launched several initiatives for

environmental improvement and sustainable development, some of which are given below:

- Environmental monitoring and exposure assessment
- Epidemiological studies towards understanding the cause-effect relationships between environmental factors and health.
- Vulnerability assessment studies – investigating the influences of demographic, socio-economic, natural and cultural factors in environment-health linkages, with a view to assessing the causes differential vulnerability to environmental health risks across population sub-groups
- Environmental and health impact assessment – for sectors such as mining, transport, agriculture and SMEs (small and medium scale enterprises)
- Development and dissemination of technologies that have the potential to mitigate environmental damage and enhance human well-being – e.g. renewable energy technologies; improved cook-stoves; high-rate anaerobic digestion and membrane process for water/waste water treatment
- Cost-benefit analysis of EH (Environmental health) interventions (including technological and policy measures)
- Influencing policy-makers with a view to mainstreaming EH concerns
- Creating awareness among diverse stakeholder groups (spanning policy-makers, industry representatives, children and local communities) about risks associated with environmental damage
- Modeling water availability and quality
- Urban services environmental rating
- Socio-economic dynamics and the environment
- Energy sector externalities
- Environmental education and awareness.

Scope for Dutch companies

There are excellent opportunities for Dutch companies to tie up with Indian organizations in public & private sector as well as NGOs in following areas:

- Conducting epidemiological studies towards understanding the cause-effect relationships between environmental factors and health.
- Monitoring pollution levels
- Undertaking research projects on environmental issues
- Imparting training to scientists, engineers in development and dissemination of technologies that have the potential to mitigate environmental damage and enhance human well-being - e.g. renewable energy technologies; improved cook-stoves; high-rate anaerobic digestion and membrane process for water/waste water treatment
- Creating awareness among diverse stakeholder groups (spanning policy-makers, industry representatives, children and local communities) about risks associated with environmental damage
- Implementing schemes for environmental control and sustainable development
- Providing technical services to Government Pollution Control departments - to commission impact assessment studies
- Technology and supplies for CNG/LPG kits, dispensing units and filling stations pollution control equipment waste treatment plants
- Setting up industrial parks with complete pollution control infrastructure in areas like leather tanning, dyes and intermediates, etc
- Setting up Common Effluent Treatment Plants.

Further References

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Processed Foods

India is the world's second largest producer of fruits & vegetables, but the industry itself is not fully developed. Less than 2 per cent of fruits and vegetables are processed in the country, as compared to 30 per cent in Thailwand, 70 per cent in Brazil, 78 per cent in the Philippines and 80 per cent in Malaysia. The value addition in the food sector is only 7 per cent. India is the land of spices producing all varieties worth over Rs. 3500 crores (US $ 900million) amounting to 25-30% of world production, which is processed for value-addition and export. It grows 22 million tonnes of oilseeds covering most of the varieties. Other important plantation products include tea, coffee, cocoa and cashew.

By the year 2010 it is estimated that the production of fruits and vegetables would reach 80 per cent of the quantity of food grains produced in India. Coupled with the fact that the yield of these crops in India is just about one-third compared to other countries, we can imagine the sort of spurt that is probable in the sector.

India is one of the world's major food producers but accounts for less than 1.5 per cent of international food trade. This indicates vast scope for both investors and exporters.

As a result of several **POLICY INITIATIVES** undertaken since liberalization in August 1991, the industry has witnessed fast growth in most of the segments. As per a recent study on the food processing sector, the turnover of the total food market is approximately Rs.2, 500 billion (Euro 69.4 billion) out of which value-added food products comprise Rs.800 billion (Euro 22.2 billion) The sector is projected to grow to Rs. 4,800 bn by 2005, of which value added foods shall account for Rs.2, 250 bn.

Since liberalization in Aug'91 and up-till Feb 2000 proposals for projects of over Rs.53,800 crores (US.13.4 billion) have been proposed in various segments of the food and agro-processing industry. Besides this, Govt. has also approved proposals for joint ventures, foreign collaboration, industrial licenses and 100%export oriented units envisaging an

investment of Rs.19,100 crores (US $ 4.80 billion) during the same period. Out of this, foreign investment is over Rs. 9100 crores (US $ 18.2 billion).

Food processing involves 6% of India's total industrial investment and 13.5% of total industrial output. Employment generation is among the largest in food processing and an estimated 18% of the national labour force works for this sector. The processing industry grew by 20% per annum during 1993-97, and has seen the entry of several international companies in all sub-groups of food processing. However, subsequent growth has been slower, given the high fluctuations in agriculture output as well as a shortage of cold chain and retailing infrastructure. Since liberalization in 1991, Rs. 91 bn worth foreign investment approvals were accorded, of which actual inflows have been Rs 23 bn.

The industry requires about Rs 2,90 billion in investment over the next five years to 2005 to create necessary infrastructure, expand production facilities and state-of-the-art- technology to match the international quality and standards.

Food exports in 1998 stood at Euro 5.8 billion whereas the world total was Euro 438 billion. Out of India's exports, rice accounted for 46%, whereas marine products accounted for over 34%.

Beverages, frozen vegetables and fruits, fruit pulps and pickled/ preserved products account for the bulk of the processing industry. Growth rate in most segments is over 20% per year, driven by the entry of several international players - Coca Cola, PepsiCo, etc. Yet, the unorganized sector dominates the food processing industry: half its value is added in small-scale processing and other converting units.

The processing sector faces the following bottlenecks:

- The biggest bottleneck in expanding the food processing sector, in terms of both investment and exports, is lack of adequate infrastructure.

- Without a strong and dependable cold chain vital sector like food processing industry which is based mostly on perishable products cannot survive and grow. Even at current level of production, farm produce valued at Rs 70,000 million is being wasted every year only because there is no adequate storage, transportation, cold chain facilities and other infrastructure supports. Cold chain facilities are miserably inadequate to meet the increasing production of various perishable products like milk, fruits, vegetables, poultry, fisheries etc.
- Lack of post harvest facilities to handle perishables, for onward processing- over 20 % of the fresh harvest valued at Rs 50 billion is lost on this account alone.
- Lack of suitable processing-grade varieties - Indian products have low yields, which together with inadequate preservation, increase the end product costs considerably
- Import restrictions on commercially important crops like potato, and horticulture seeds/planting materials- which deter free import of exotic varieties for cultivation
- Complex phytosanitary certification requirements and post entry quarantine conditions for imported planting materials and seeds
- Impediments in land holding policies for organized cultivation, which restrain commercial production advantages.
- A large part of the food processing industry is in the small scale and household sectors, and lacks economies of scale
- Lack of quality awareness as well consistency of quality as per international standards
- Regulations such as the Prevention of Food Adulteration Act impede the launch of new products, by stipulating cumbersome- and in some cases, unnecessary controls
- The retail distribution network of perishables is not yet developed across the country, which limits the geographical reach of processed foods.

Prevention of Food Adulteration laws is not only stringent one but time consuming also. It is considered as an archaic and no industry friendly food law. It substantial varies from Codex standard. Harmonization of multiple food laws is an urgent necessity. Food processing attracts several legal aspects such as manufacturing standards, food safety and consumer

protection, besides national food security concerns. Among mandatory requirements, the most important is the Prevention of Food Adulteration Act (PFA), 1954. While food safety regulations are practiced in several countries, India's PFA is highly prescriptive: besides dealing with harmful impurities and adulteration, it also specifies the permissible limits of various food ingredients in order to ensure safety in the consumption of these food items. Several prescriptions are at variance with the Codex Alimentaris, which is the international reference standard. As a result, even foods that are consumed worldwide without any health safety risks require to be modified to suit Indian prescriptions.

A few sectors of India's processed foods industry are outlined below:

1.Grain Processing

India's food grains production is now at around 225-230 mn tonnes. There are more than 35000 modern rice mills processing 3.4 mn tonnes of rice and more than 800 wheat roller mills processing 10 mn tonnes of wheat products, for domestic as well as export requirements. The grain-milling sector is fully decontrolled for domestic markets, while exports attract a quantitative ceiling depending on domestic production levels. Grains could emerge as a major export earner for India in coming years, provided quality considerations, particularly pesticides residue, are ensured as per international standards.

2. Consumer Food Industries

The consumer food industry mainly consists of ready -to -eat or ready -to-cook products such as pasta products, cocoa based products, bakery products, biscuits, soft drinks, etc.

Bakery, with an output of 3 mn tonnes, is India's largest segment in food processing, although more than 60% of the output comes from thousands of unorganized small-scale industries. Bread and biscuits account for almost 2.5 million tonnes, of which large units account for

35% of the output. *Unilever recently bought 74% of India's largest bread company that was formerly owned by the Govt. of India.*

Cocoa products such as chocolate beverages, malted milk foods, chocolate, etc. are produced in India by some of the world's leading brands- Smith Kline Beecham, Cadbury and Nestle among other Indian units. Annual production of cocoa products is estimated to be 35000 tonnes; India imports a substantial part of its cocoa beans from Ivory Coat, Indonesia and other origins.

Aerated beverages or soft drinks as popularly known in India have seen brisk competition by the two global players Coca Cola and PepsiCo, in the 6 bn bottles Indian market. PepsiCo has the larger market share in India because of its earlier entry and aggressive distribution and franchise network. Both players are now also entering the large mineral water segment, which is slated for high growth in India.

Alcoholic drinks are allowed to be produced only by units having licenses from the state Government besides other approvals. There are 36 licensees for beer, having an output of 400 hectoliters per annum. India's potable alcohol market (popularly called Indian made Foreign Liquor) is estimated to be 70 million cases, valued at Rs. 30 bn. Foreign brands from leading players such as Bacardi, Seagram, IDV and other are now bottled in India under specific licenses and subject to export obligations. The market for premium, imported brands is less than 0.1% of the overall volumes. Alcoholic beverages is another area where India witnessed substantial foreign investment. Foreign investment in this sector stood at Rs 7 billion, which is about 70 percent of the total investment made so far.

3. Fruit and Vegetable Processing

5200 units licensed under the Fruit Products Order (FPO) produce processed fruit and vegetable products including frozen or dehydrated products, jams, squash, ketchup, juice and nectars. The 1999 output

was close to 1 million tonnes, against a licensed capacity of 2.1 million tonnes. Seagram launched its famous Tropicana juices in India in 1999.

4. Milk and Milk Products

India is the world's largest producer of milk, with an output of 78 million tonnes, and a market value of Rs 55 bn. However, most of the production is consumed fresh or in short-life products: market milk, with a market value of Rs 12 bn, is the most important product. Less than 0.3 million tonnes of milk solid products were manufactured in 1999, of which infant milk powder and malted weaning foods are the most important products, followed by butter and cheese.

The dairy products industry, valued at Rs 1050 billion, constitutes 28% of the total value of agricultural production, and continues to grow at a rate of 5-6% per year. Demand continues to rise along with the rise in spending power, and new preferences in convenience and fad foods like pizza, ice cream and other foods using milk ingredients.

India also imports milk powder in the summer months, subject to an annual ceiling set by the Ministry of Food Processing. With increased market access commitments, India has negotiated for a tariff rate quota for milk powder allowing duty fee access for 25000 tonnes, while further imports shall attract import duty of 60%.

By 2005, the value of Indian dairy produce is expected to be Rs 1,000 billion. In last six years foreign investment in this sector stood at Rs 3.6 billion which is about one-fourth of total investment made in this sector. Manufacture of casein and lactose, largely being imported presently, has good scope. Exports of milk products have been decanalised, implying that now private sector can also export these products.

5. Meat and Poultry Products

The current production of meat and poultry products in India, excluding eggs, is estimated to be 4.2 million tonnes per annum. Cattle meat and buffalo meat are the principal components, while pork is the smallest. However, the slaughter rates among livestock are contrasting, with more than 99% in case of pigs, 39% in goat and only 6% in case of cattle, reflecting other uses of bovine animals such as milch or workload animals. Also, poor animal health and other quality problems impede the production and export of meat and poultry products in India.

Table A.23 Meat Production trends, thousand tonnes

	1994	*1995*	*1996*	*1997*	*1998*
Mutton & Goat meat	637	647	669	670	675
Pork Meat	366	420	420	420	420
Poultry Meat	442	578	480	580	600
Cattle Meat	1290	1292	1292	1292	1295
Buffalo Meat	1200	1204	1204	1205	1210

Source: Department of Food Processing, Annual Report 1999-2000

6. Fish Products

India has been an important player in marine product exports, especially in shrimp exports.

National fish output from marine and inland sources has been stagnating close to 5.3 million tonnes, of which marine resources accounted for 55% in 1999. Exports have been a major thrust, accounting for almost 95% of marine processing. India was adversely affected by sanctions imposed by the US on environmental reasons (Turtle Excluder Device) and new Hazard Analysis Critical Control Point (HACCP) regulations on marine frozen products in the EU market which led to rejections of several export consignments, initially. In the last six years there was substantial investment in fisheries to the tune of Rs30 billion, of which foreign investments were of the order of Rs7 billion.

Foreign Investment regulations

- All food processing industries (other then milk food, malted foods and flour, and a few items reserved for the small scale sector) are included in the list of high priority industries eligible
- Automatic approval is accorded for foreign direct investments, provided that foreign equity participation is up to 51%. All items of packaging for food processing industries, excluding items reserved for small scale sector, are also eligible for automatic approval
- Foreign investment proposals which are not under the category of automatic approvals, are also considered on merit
- There are no requirements for obtaining industrial licenses for setting up or expanding capacity in most food processing industries provided that the unit is not located within 25 km of the periphery of the standard urban area limits of the city with a population of more than 1 million, as shown by 1991 Census
- There are licensing requirements in the case of distillation and brewing of alcoholic drinks and manufacture of sugar, animal fats and oils
- Food processing units are allowed to be set up as 100% export-oriented-units (EOUs), which produce and export all their production. Such units are permitted to sell upto 50% of their FOB export earnings in the domestic market, after payment of applicable duties.

For Further Information

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Business Process Outsourcing (BPO)

In business process outsourcing, companies outsource their business operations like accounting, human resource management, sales and marketing assistance to other companies to reduce the cost of managing these functions. Several global majors, including some of the top Fortune 500 companies, are reported to be looking at strategic outsourcing partners, acquisitions and captive development centres to outsource to India. Companies likely to outsource to India include financial institutions, business conglomerates and technology majors.

Though the Indian business process outsourcing sector is still in its nascent stage, many leading companies are looking at consolidation to handle major projects. India has a pool of 650,000 IT knowledge workers, out of which 160,000 are engaged in ITES-BPO sector. As of December 2002, India has 48 companies at SEI CMM LEVEL 5 l assessment, while 254 ITES-BPO companies have acquired quality certification.

Despite a recession, some states in the United States protesting against outsourcing software development and business process outsourcing to India and growing protectionism in key markets like the US and Europe, India's ITES-BPO sector showed a healthy growth of 65% in 2002-03, with export revenue rising from Rs. 71 billion (Euro 1.4 billion) in 2001-02 to Rs. 117 (Euro 2.4 billion) in 2002-03. It is projected to grow to about Euro 21.24 billion by 2008.

The growth in BPO services revenue reflects a growing trend by US and European companies to outsource services like call centres and back office operations to their Indian subsidiaries and other companies in India.

Growth in IT services revenue from areas like software development and design services business was lower in the year to March 2003 than the 22% growth in revenue posted by the previous year, and far lower than the growth rates of more than 50% posted year-on-year by the sector about three years ago.

IT services margins are also under severe pressure, and will go down further, according to NASSCOM. When reporting financial results for the year to March 31, key software services companies like Wipro and Infosys Technologies, both based in Bangalore, said they were under intense pressure from customers to lower prices.

The pressure has left the relatively newer BPO services industry as the sector with a promising forecast. Revenue from BPO and related services is projected to grow 54% in the year to March 31, 2004, to touch $3.6 billion.

But US and European companies and governments have been criticised for moving jobs to India by outsourcing software services and BPO, and some state legislatures in the US such as New Jersey are considering a ban on government business to technology companies that outsource work.

There will not be an immediate impact as these anti-outsourcing bills have just been introduced, and will need to pass through various stages to become law. The Indian software and service industry has led to significant cost savings, increase in productivity and quality which has thereby resulted in customers retaining their competitive edge due to offshoring. Indian industry is communicating this powerful message to policy makers and governments across the globe.

As Indian software companies move most of the software development work to India, rather than do the work at clients' sites in the US and Europe, the impact of visa restrictions on Indian companies will also be reduced. Projects executed offshore in India contributed 57% of revenue the year to March 31, 2003

ICT Sector

Market Size and Developments

India's Information- Communications-Technology (ICT) sector has seen the most significant- somewhat revolutionary, even- changes during the past ten years, and has ushered in a phase of services-led economic growth in the economy. The present size of the sector is estimated to be

more than US$ 27 billion, composed of US$ 6 billion in information technology systems (computing hardware and software), US$ 10 billion in Information technology services (including software and enabled services such as business process outsourcing, remote location e-processes), US$7 billion in telecommunication services (voice and data services), and US$ 4 billion in telecom equipment.

Information Technology Services

Table: India's IT Services Industry Segmentation, US$ million

	Exports		Domestic Sales		Total revenues	
	2000-01	2001-02	2000-01	2001-02	2001-01	2001-02
Software services	4750	5780	1737	1923	6487	7703
IT- Enabled services	900	1475	70	147	970	1622
R&D services	550	575			550	575
Training			511	379	511	379
Total	6200	7780	2318	2449	8518	10229

Source: NASSCOM

Software

India is considered to be the source of the highest levels of competence in software development, proved by the dominance of Indian companies among SCIMM level 5 certified companies. More than 300 of the global Fortune 500 companies source software from Indian companies.

Software and services registered a turnover of Rs.480 bn ($10.2 bn) in 2001-02- a growth of 22% over previous year. Of this, exports accounted for Rs 365 bn ($7.68 bn). Revenues for 2002-03 are estimated to be Rs 670 billion ($12.3 bn), including exports of Rs 475bn. The sector is dominated by a few companies, with the top 10 companies accounting for 77% of the export market. Another trend in the past five years has been the offshore billings (Rs 180 bn) growing thrice as fast as onsite revenues (Rs. 170bn).

IT-enabled Services

In 2001-02, IT enabled services, including all forms of remote processing activities such as back office processing of billing, payroll, insurance claims processing, legal and medical transcription and call centers, had a market size of $1.62 bn, which was nearly 70% higher than of the previous year. Exports account for more than 90% of revenues. Large international players have invested significantly in India in the segment. A few prominent names are GE Capital Services, Citigroup, HSBC, British Telecom, British Airways, Swissair, AIG, etc. IT-enabled services are expected to remain the fastest-growing segment of the IT sector, and India is considered a favourite destination for offshoring activities in the US$ 600 bn global IT-enabled services market.

E-commerce

With the Internet already attaining critical mass, the global e-commerce market is estimated to be US$200 billion. However, India's e-commerce market is still quite small, with total revenues of Rs 4.5 billion in 2000, most of it originating in the form of B2B commerce. India needs to create a favourable environment for e-commerce transactions through foolproof, secure, payment gateways, and suitable tax and commercial laws covering cyber transactions.

Computer Hardware

In 2002, the market size of India's computer hardware segment was Rs 160 billion, of which systems accounted for Rs 110 billion, peripherals Rs.34 billion and others (networking products etc.) Rs 22 billion. The hardware market is practically ruled by imports, which represent more than 90% of the market value. India lost out on the hardware manufacturing wave of the 1980s and 1990s to a highly foreign-investment friendly environment in South East Asia, and has been unable to establish competitive advantage in component manufacture since then. The absence of domestic industry and the boom in IT services has resulted in a low import tariff regime for hardware, and India is a signatory to the IT Agreement which foresees a **nil duty** on all computing hardware by 2005.

Future trends

According to IDC, a leading international technology research firm, India's information technology sector is expected to touch US$ 46 bn by 2006, driven by export growth. ITES will have the highest growth rate- 56%. Domestic IT spending, which was Rs. 248 bn in 2001, is expected to touch Rs.600 bn in 2006, a growth of 21% per annum. The big opportunities are forecast in business integration, mobile and wireless, new computing architecture (Virtual networks and Application Servers) and security (data encryption, protection, storage and redundancy).

By 2008, Infotech is projected to become India's largest sector, contributing 7% of GDP and 30% of exports, and shall have a market size of US$ 77 billion. The major share will be from IT Services exports (US$ 28-30 bn), IT enabled services (US$ 21-24 bn), products and technology services including e-commerce (US$ 8-10bn), and domestic services market of $ 13-15 bn. Exports are expected to touch US$ 50 billion. Attaining the vision requires an investment of US$ 23 billion in infrastructure and systems, besides generating at least 0.25 million trained professionals each year, which calls for quadrupling the present annual capacity of India's technical institutions.

Telecommunications

India's telecom sector consists of a services market estimated to be Rs 345 billion, an equipment market estimated to be Rs 180 billion, and Rs. 51 billion of related services (mainly software). The installation base is currently more than 50 million telephone connections comprising 39 million basic telephone lines and 12 million cellular phones, besides 3 million Internet connections, and 15,000 VSATs. In 2001-02, telecom sector companies had combined revenues of Rs 650 billion, which was 22.3% higher than the previous year. However, despite being the sixth largest network in the world, India has a telecom density of just 3.7%. Cellular penetration is even lower at 0.1%.

India's Telecom Industry, Rs. billion*

Segment	*Size*	*Fixed*	*Mobile*	*ISP*	*VSAT*	*Paging*	*Trunking*
Telecom services	345	290	38.6	9.69	3.69	2.10	0.34
Equipment	179	Carrier	Cables	Enterprise Data	Enterprise voice	Phones	Testing
		93.70	43.20	19.96	4.63	13.52	3.7
Related services	51	Telecom software 41.00, remainder other services					

* Excludes carriage revenues from incoming international long distance calls, estimated to be Rs 35 billion.

Source: Voice & Data

Fixed Line Services consist of local or basic services, national or domestic long distance services, and international long distance services. The domestic market (i.e. excluding international revenues) has a current market size of Rs 290 billion. The installed base of fixed line connections is estimated to be 39 million lines. Private enterprises have less than one million connections, however, they generate more average-revenues-per-user (ARPU) by offering high-end services, such as leased lines, ISDN, closed user group and videoconferencing.

Cellular Mobile Telephone Services: India is the fastest growing market in the Asia Pacific region today, with the market growing at more than 100% per annum since 1999. The cellular subscriber base is presently more than 12 million, and in 2001-02, billed revenue was estimated to be in the region of Rs 41 billion, of which the four metro circles account for more than 50%. In many circles, cellular services have been launched before fixed line services, on account of speedy rollouts.

In 2003, cellular service providers have been embroiled in legal disputes over controversies with basic service operators over the launch of limited mobility services, especially with the entry of CDMA based WLL services

from Reliance Infocomm in 17 states, with a Rs 250 billion investment including 40000 km of optic fibre all over India.

Internet Services: India currently has an active Internet subscriber base of less than 3 million, spread among more than 500 Internet Service Providers, of which 24 have their own international gateways. Service revenues are estimated to be around Rs. 10 billion, of which more than 80% come from leased line, broadband, wireless and other corporate services.

Very Small Aperture Terminal (VSAT) Services: VSAT services can be provided by Indian companies for operating 64 Kbps close-user data networks. The scope of VSAT services was initially limited to data application only but extended to allow limited voice in close users group. VSAT networks presently serve 5000 subscribers, and the market is stated to grow by 40% annually.

Bandwidth

Bandwidth or data transmission capacity is the point of convergence of information technology and telecommunications, and has been the subject of concern for the IT sector which saw availability of adequate bandwidth as a key constraint to growth in value-added services. In 2000, only 10 Gbps of international bandwidth was available from India, compared to the need for about 300 Gbps to attain its 2008 export target of US$ 50 billion. However, various events- a major policy shift that allows foreign carriers to lease satellite bandwidth to India, FDI in end-to-end bandwidth projects, a downward correction in demand for high bandwidth applications like broadband internet, video streaming and online e-commerce, and a large supply of bandwidth from Indian telecom operators-have bridged the gap in bandwidth in the short term.

Reliance, BSNL and Bharti Online have created nationwide Internet backbones and are implementing under sea fiber optic cable bandwidth linking India to Singapore and Europe. Nearly 0.4 million km of optic fibre networks have been added in the domestic market during the past two years, with an investment exceeding Rs 100 billion, with a similar amount currently under implementation.

Telecom Equipment

In 2000-01, the market size was estimated to be more than Rs 178 billion (nearly US$ 4 billion). Imports account for a substantial part of the equipment market, especially capital goods for telecom service projects. Alcatel, Siemens, Ericcson and Nokia are among the European equipment manufacturers operating in India in this segment, and have a large market share in digital exchanges, ISDN Switches, Gateway Switches, and terminal equipment.

Growth trends

The sector is expected to continue growing at more than 15% annually over for the next five years, with cellular services expected to have the fastest growth. According to international experts, service revenues shall touch Rs 700 billion ($ 14 bn) by 2007. Of these, data services would account for $1.6 billion, cellular services $3.8 billion, fixed line $3.3 billion, national long distance $3.4 billion and $ 1 billion from the international long distance services. The cellular telephony market is expected to continue its high growth rate, and is poised to serve about 45 million subscribers by 2006, i.e. a five-year annualized growth rate of 46%. Cellular service revenues are expected to touch $ 5.2 billion, with annualized growth rate of 38%.

Attaining India's telecom vision - a basic tele-density of 7% by 2007 and 15% by 2015 requires India to add 50 million new telephone connections by 2007 and 130 million telephone connections by 2015. Similarly, cellular subscriptions are expected to grow from the present 12 million to 45 million connections by 2007. At current capital costs this requires cumulative investments of Rs. 1.6 trillion (USD 35 billion) by 2007.

Imports

Table: Software/ITES/BPO - Imports Figures in US$ million

Code	Description	1998-99	1999-00	2000-01	2001-02
8471	Auto Data Processing machines	453.8	578.41	711.87	585.24
85249902	Software on floppy/cartridge tape	77.22	71.25	83.88	76.34
85245301	Magnetic of width >6.5mm containing software	85.32	125.06	102.17	104.2
Telecommunications					
8517	Electrical app. for line telephony/telegraphy	111.08	164.42	203.75	240.52
8525	Transmission apparatus for radio telephony, etc.	147.97	148.84	201.77	334.02
8527	Reception apparatus for radio telephony	6.99	7.24	6.98	13.79

Origin of Imports 2001-02 (top three countries and The Netherlands), US$ million

Code	Country 1	Country 2	Country 3	Netherlands
Auto Data Processing machines	Singapore 166.49	USA 88.53	China 72.46	1.47
Software on floppy/cartridge tape	Korea RP 20.28	USA 14.03	Singapore 10.59	0.32
Magnetic of width >6.5mm containing software	Sweden 37.69	USA 33.84	Germany 17.45	0.57
Electrical app. for line telephony/telegraphy	USA 46.93	Sweden 35.15	Germany 24.53	0.26
Transmission apparatus for radio	Sweden 72.44	Korea RP 66.95	USA 38.58	3.1

telephony, etc.				
Reception apparatus for radio telephony	Hong Kong 5.65	China 3.92	Malaysia 0.96	0.02

Foreign Direct Investment

The telecom sector is a major recipient of foreign direct investment (FDI). During the period August 1991 to June 2002, 831 proposals for FDI of Rs 562 billion were approved and the actual flow of FDI during the above period was Rs 95.28 billion. In the year 2002, the increase in FDI inflow was of the order of Rs 10.77 billion during January to July 2002.

EU companies are visible mainly in the telecom equipment segment, with players like Alcatel, Siemens, Ericsson and Nokia having a strong presence in their respective areas of business (switching equipment and terminal equipment). The only player visible in the services segment is France Telecom, with a minority stake in the cellular services venture BPL Cellular, operating in Bangalore and Mumbai circles for cellular services. However, several European players- British Telecom, Telecom Italia, Swiss Telecom, KPN Nepostel- have exited their joint ventures in the past two years. Their holdings were bought out by the Indian partners or by other strategic partners.

Government Programmes

Disinvestment: Offloading majority holding in the state-owned international long distance carrier VSNL, and the computer services company CMC, were the major steps taken by government toward disinvestments. Both these companies were disinvested to the Tata group, which has interests in all segments of the ICT sector.

E-governance: The union government, as well as several state governments, are investing substantially to create digitized records for land titles, tax databases and other public records, besides instituting electronic filing of documents, tax payments and other clearances.

Foreign Investment Regulations: Foreign direct investment is permitted up to 49% of paid up equity capital in all services- basic, cellular, paging and Value Added Services, and Global Mobile Personal Communications.

FDI up-to 74% is permitted in ISPs with gateways, radio-paging and end-to-end bandwidth.

FDI up-to 100% is allowed in all segments of information technology and in the following segments in telecom manufacturing, ISPs not providing gateways (both for submarine and satellite cables); Infrastructure providers providing dark fibre; Electronic mail; and voice mail.

Tax regime

The customs duty on imported IT and telecom equipment ranges between 38.7% to 56.8%. On software, the import duty is 32.7%.

Investment & Business Opportunities

The attractiveness of India's ICT sector companies is its emergence as a specialized ICT cluster, based on a unique combination of four factors: a highly skilled world-class software services cluster that is well linked globally; a large pool of cost-competitive teleworkers in IT- enabled services, a fast-growing domestic telecommunication market attaining critical mass with increased data capabilities and state-of-the -art infrastructure, and favourable government policies. The most interesting opportunities are in the following areas:

- Offshore Software Development
- Establishment of European language (Non-English) proficiency centres, combined with IT-enabled services, in all the important cities of India.
- Archival Services and digitisation: Conversion of old technical documents, engineering drawings, records and other archives into digital archives, is a high-volume-low-value addition service that several Indian firms offer by way of IT-enabled services

- Chip Design: India, with more than 1000 chip designers, has become a global development centre for chip design for several international companies, including Intel, National Semiconductor and Texas Instruments.
- IT infrastructure: With the national backbones and international optic fibre links in place, the next levels of opportunities in outsourced infrastructure are foreseen in Storage Area Networks and Data Centres -server farms owned and operated with complete redundancy (duplication for security) by third parties, Gateway / earth stations to link internet service providers to the international gateways, Internet backbones, world-class intelligent buildings and related physical facilities that offer plug-and-play facilities to investors on a ready to move basis.
- Telecom services:
  - Collaborations in NLD/ILD services: as partners, equipment and solution providers, as technical partners, and international carriage arrangements with Indian ILD operators
  - Telecom switching equipment, whose demand during 2002-2007 is estimated at USD 22.3 billion; the demand for Cellular Switches, ISDN Switches, Gateway Switches, ATM frame relays; transmission equipment, and WiLL systems equipment is expected to grow sharply.

Infrastructure Sector

Market Size and Market Development

The infrastructure sector in India has seen impressive transformation in the last few years – more significant in some sectors (such as telecom, roads and highways) than in others such as ports, airports, railways etc. The most important development in the sector has been the steady progress in privatization, though not without bottlenecks and policy debates over the extent and content of the same.

An overview of the principal sub-sectors is summarized below:

Building and Construction

Building and construction activities (excluding highways, ports and airports which are dealt separately) have risen substantially, both in industrial as well as residential segments. The biggest developments have been in urban housing, industrial parks, townships and special industrial zones. The growth has come on account of an increased disposable income, lowering of interest rates on housing loans, tax benefits for housing loans, bank lending to corporate real estate developers, and demand for modern industrial designs, including intelligent buildings.

As per the Census 2001, the total housing stock is reported at 249 million (including non-residential buildings), a 27% growth over the level in 1991. Residential dwelling units represent three- fourths of the stock, balance being non-residential and commercial buildings. About 78 million dwelling units are in urban areas and this is the fastest growing segment.

Future trend: Based on demographic trends, by 2011, there will be 115 million urban housing units and 202 million rural units. Forecasts of likely growth in housing, based on population growth of 2% per annum, indicate that the building stock will rise by 6 million units each year till 2011. As

per estimates of Building Materials and Technology Promotion Council, an investment of the order of **Euro 1000 billion** would be required in housing/building sector until 2010, of which a major share is envisaged to come from the private sector.

Airports and Airport Equipment

India has five international airports (Mumbai, Delhi, Chennai, Kolkata and Thiruvananthapuram), 87 domestic airports and 27 civil enclaves, besides more than 300 small airstrips. However, only 61 airports are operational, and more than 50% of the total traffic is handled from Mumbai and Delhi airports. In 2001-02, about 40 million passengers and 0.8 million tones of cargo (domestic and international both) were handled at all airports. The traffic as grown by more than 125% in the past ten years; national carriers Air India and Indian Airlines handled less than 25% of the business. Airports are an important commercial service for India given that 40% of India's trade by value, and 95% of international travel to and from India takes place through this mode.

Future trend: By 2010, air traffic is expected to rise significantly, from the present 40 million to around 90 million. International air cargo exports from India are expected to rise from 0.7 million tonnes to 2.4 million tonnes while domestic cargo will rise from 300,000 tonnes to over 1 million tonnes.

In terms of equipment, 67 airports are equipped with Very High Frequency Omni Range (VOR) and Distance Measuring Equipment (DME); 31 Airports are equipped with Instrument Landing System (ILS) and only 8 airports are equipped with Primary & Secondary Radars. Most airports are in urgent need of upgradation of aircraft handling capabilities of airports, in terms of maximum size of aircraft etc. The Ministry of Civil Aviation has plans to upgrade equipment at various airports to meet International Civil Aviation Organization (ICAO) standards. The CNS/ATM (communication, navigation, surveillance/air traffic management) systems are proposed to be introduced on priority are: Satellite based CNS system, Differential Global Positioning System (DGPS), Automation in the Air Traffic Control Services,

and Automatic Dependent Surveillance (ADS), etc. In 2003, a budgetary allocation of **Euro 2 billion** has been made for renovation/modernization of two airports (Delhi and Mumbai) and two seaports (Jawaharlal Nehru Port Trust (JNPT), Navi Mumbai and Cochin Port). This is in addition to the plans for setting up two private airports in Bangalore and Hyderabad. This will generate demand for airport equipment.

Privatization of airport management services has been another major item under the civil aviation agenda. Initially, the approach was to lease out the airports to international players such as BAA, Zurich Airport Schipol Group, etc. However, the proposals could not take off as they required a change in the Airports Authority Act to include lease arrangements, which has remained pending before parliament. The Airports Authority (Amendment Bill 2003) – is presently before Parliament for approval. Once enacted, it is likely to clear the way for the Airports Authority of India to lease out the airports under its control, as well as for greenfield private airports, including with foreign equity. However, to provide a workable alternative, foreign investment regulations have been amended to include joint ventures between private companies and state bodies to manage airports.

The Bangalore International Airport, currently under construction, is the first private-owned airport in India, with shareholdings from Siemens (40%) and Zurich Airport (17%), and the Indian government holding 26% New international airports have been announced for Hyderabad, Agra and Goa on the joint venture model with 26% ownership by government bodies, and private sector partners have been identified for Hyderabad airport. The Government of India also intends to induct private investment through the joint venture route for expansion and modernization of Delhi, Mumbai, Chennai, and Calcutta airports.

Roads and Highways

India's roads and highways network consists of nearly 58000 km of national highways, 138,000 km of state highways and an overall roads network of 2.5 million km. However, nearly two-thirds of the national

highway network is single-laned. Only 2% of the network has four-laned highways, and operates in small stretches between two or more cities.

After a long period of frustrating experiences and imbroglios over policy and ownership aspects, there has been a dramatic upswing in the Indian Roads and Highways sector in recent years. The most positive factor has been the change in policy from the earlier strictly toll-based BOT model (which brought in uncertainties in revenue and complicated financial closure) to include schemes involving either standard rate contracts (construction only) or annuities over the concession periods.

As a result, several projects have been launched since 1998 under rate contract or annuity models, and many have been completed or are under advanced stages toward completion. Several projects have bonus clauses for timely or early completion. As a result, private sector participation in roads and highways construction is growing; as of end 2002, tolling projects worth Rs. 31 billion and Annuity Projects worth Rs. 22 billion have been awarded to the private sector.

The most important project under way is the National Highway Development Plan (NHDP), consisting of two phases:

Phase I –The Golden Quadrilateral (GQ), to connect the four major metros with four-lane national highways, a stretch of 5,846km, to be completed by June 2004
Phase II – The North South East West (NSEW) corridor to link Srinagar to Kanyakumari and Silchar to Porbander, a stretch of 7,300 km, to be completed by 2009.

The total estimated project cost is Rs. 540 billion (Euros 10.8 billion). The progress in both the projects has been quite satisfactory. About 20% of the GQ project is completed and the project is likely to be completed ahead of schedule – by end of 2003. The NSEW project completion target has also been advanced to 2007.

In addition to the NHDP, this year's Union Budget has also provided for another 48 highways projects, with a total length of over 10,000 kms. of which at least 3,000 kms will be taken up in the year 2003-04.

Imports

The major imports in building and construction sector are of heavy earth moving and material handling equipment. A sharp increase in 2001-02 indicates a surge in construction activity, necessitating imports of heavy equipment - mainly for roads, highways, bridges and flyovers.

In the airport equipment sector, the imports of navigational equipment have been steadily rising in the past few years, and the coming years should see an increase in the imports of safety and traffic control equipment as well.

Table: Infrastructure sector imports (US$ million)

		1998-99	1999-00	2000-01	2001-02
Buildings, Construction, Roads and Highways					
8425	Pulley, tackles, hoists…….	4.99	5.99	5.35	13.89
8427	Fork lifts trucks…. lifting or handling equipment	4.39	4.03	4.06	3.17
8428	Other lifting/handling, loading or unloading machinery	27.68	42.62	23.35	26.02
8429	Self propelled bull-dozers etc.	30.67	29.33	25.98	55.54
8430	Other moving, grading…… equipment	17.75	11.76	36.99	65.73
Airports equipment					
8802	Aircrafts	116.58	37.77	148.99	118.19
8526	Radar apparatus, radio navigational aid……	4.53	12.88	14.9	23.19
8530	Electrical signalling, safety and traffic control eqpt.	0.62	4.93	2.52	2.56

Both the national carriers – Indian Airlines and Air India, have plans to buy aircrafts worth Euro 2 billion each in the near future. Air India is already evaluating financial bids. Many of the private airlines have also announced plans to expand their fleets.

Origin of Imports 2001-02 (top three countries and The Netherlands), US$ million

Code	Country 1	Country 2	Country 3	Netherlands
Pulley, tackles, hoists…….	USA 8.03	Singapore 1.41	UK 1.24	0.45
Fork lifts trucks…. lifting or handling eqpt	Korea 0.57	France 0.52	Germany 0.52	nil
Other lifting/handling, loading/unloading m/c	Germany 10.36	Thailand 1.69	Italy 1.68	0.2
Self propelled bull-dozers etc.	Brazil 17.79	Japan 9.98	Germany 4.43	1.83
Other moving, grading…… equipment	Germany 23.4	USA 14.49	UAE 7.06	0.65
Aircrafts	France 76.65	USA 37.93	Canada 3.60	Nil
Radar apparatus, radio navigational aid……	Germany 4.91	Israel 4.07	Russia 3.73	0.13

Germany has been the leading supplier of construction and airport equipment to India. The share of Netherlands has been negligible.

Foreign Direct Investment

There has been insignificant foreign investment in the above infrastructure sectors, on account of restrictions in foreign investment in some segments and procedural and operational issues in others.

Ownership of roads and highways is strictly with government, and therefore, opportunities for foreign companies have been primarily in the form of construction contracts and consultancy services and equipment supplies, besides funding. However, there have been instances of minority foreign investment in Indian construction companies, especially from South East Asia. Only recently, foreign investment (up to 100%) has been allowed in the real estate segment for integrated industrial and residential townships and industrial parks. Meanwhile, specific regulations are being re-formulated for foreign investment in management, maintenance and upgradation of airports to include lease and ownership options. However, there appears to be internal disagreement on the desirability of privatization of this segment, which is considered sensitive by some stakeholders.

Government Programmes

Disinvestment schemes:

The government-owned civil engineering & construction corporation **Engineering Projects (India) Ltd. (EPIL)** has been identified for disinvestment, by offering equity up to 74% to a strategic partner. Expressions of Interest from bidders are being evaluated.

Development Promotion Plans/Incentive schemes

Building and construction

- Up to 100% foreign equity permitted for development of integrated townships, including housing, commercial premises and urban infrastructure facilities.

Airports

- Foreign equity (including by foreign airport authorities) in financing airport infrastructure permitted up to 74% through automatic route.

Roads and Highways

- Road sector declared an industry to facilitate commercial borrowing.
- Duty free import of high capacity sophisticated equipment permitted.
- Capital grants up to 40% and/or equity participation upto 30% by National Highway Authority of India in BOT projects.
- Foreign investment up to 100% allowed through automatic route, in roads sector.
- 10 year tax holiday.

Tax regime

The customs duty on most of the imported equipment for the sector is 50.8%. However, it is higher on radar apparatus and radio navigational aid for airports 56.8%. On aircrafts, the import duty ranges from 7.12% to 35%. However, notified projects attract customs duty exemptions and concessions, depending upon the equipment specifications and proposed end-use.

Projects (including plans of multi-lateral or bilateral institutions)

Roads and Highways: Golden Quadrilateral and NSEW Corridor are the two most active and high priority projects in the roads and highways sector. The total estimated project cost is Rs. 540 billion (Euros 10.8 billion), and projects are slated to be completed by 2003-04 and 2007 respectively. By 2015, the government plans to complete upgradation of existing National and State Highways and building of 10000 km of new Expressways with an outlay of Rs. 1650 billion (Euro 33 billion).

State Roads and Highways: More than 6000 km of state highways are being upgraded. Projects approved under the Central Road Fund are under consideration/ implementation in Andhra Pradesh (58 projects), Maharashtra (57 projects), Tamil Nadu (255 projects) and Gujarat (222 projects).

Rural Roads: The government also plans to upgrade nearly 900,000 km of the rural road network at a cost of about Euro 13 billion (approximately Rs 620 billion).

Airports: Work has commenced on Bangalore International Airport, expected to be operational by end 2005. The government has also announced plans for International airports at Hyderabad, Goa and near Delhi/Agra. Another project under implementation is the Parallel Cargo Terminal at IGI Airport, Delhi.

The **World Bank** is currently supporting 11 projects in roads and highways sector, with financial commitment of about US$ 3.8billion. **Asian Development Bank** is also very active in the sector, with 21 ongoing projects- 13 in roads and highways, 2 in housing development and 6 in urban infrastructure development.

Investment & Business Opportunities

The current scenario and the projected developments in infrastructure generate opportunities for the following:

- Development of Integrated townships (residential and industrial) including SEZ
- Annuity based contracts in roads and highways development and annual maintenance
- Construction equipment supplies/ lease/ hiring for projects
- Supply and financing of airport equipment
- Participation in airport service contracts

Medical Sector

Health Care

India's medical and health care sector has a market size of Rs 860 billion (Euro 19 billion), representing nearly 5% of GDP. Of this, pharmaceuticals account for Rs 120 billion, the remaining Rs 740 billion being expenditure on healthcare services including insurance. However, India's per capita healthcare spend is negligible, currently at US$ 11 per annum. The private sector has a major role in the sector considering the low budgetary support to social welfare and primary health services provided by the Govt.

India has poor social sector indices, given the high population of the poor, acute lack of medical facilities in the lesser-developed parts of the country, and a lack of public funds to provide adequate medical care and attention to the entire population.

Unplanned urbanization and neglect of the public health system as whole has led to the resurgence of water-borne diseases like hepatitis and cholera every year. More virulent forms of tuberculosis are being seen in those infected with HIV, which appears to have spread widely in India.

The number of people in India infected with the HIV/AIDS virus has risen sharply. According to **India's National AIDS Control Organisation (NACO), more than 4.5 million Indians were infected by the end of 2002.** The figure for 2001 was below four million. HIV/AIDS in India is not only confined to high-risk groups and in cities, but is gradually spreading into rural areas and the general population

Medical & Healthcare Services

Government facilities

There are four types of health-care facilities: primary health centers and rural hospitals, government hospitals, private hospitals, and teaching institutions.

The central and the state governments are major players in this sector, running hospitals, nursing homes, medical/nursing/paramedical colleges and medical insurance. A large majority of the population, particularly in rural and semi urban areas, receives free or highly subsidized treatment in such hospitals and health care centres. There are nearly 23,000 primary health centres, 137,000 sub-centres and about 3,000 community health centres.

Government Outlay on Medical and Public Health

	1998-99	1999-00	2000-01	2001-02	2002-03
Outlay (Rs. Billion)	54.12	35.69	40.55	49.29	15.27*
% Of Annual Plan Outlay	3.6	2.2	2.2	2.3	1.1*

* relates to Central Plan only. Figures for States/Union Territories not available

The national capacity of hospital beds is around 810,000, resulting in less than 1 hospital bed per thousand population, as against the WHO standard of 3.2 beds. Although India has a vast medical infrastructure, the capacity of hospitals is far less than demand. There are nearly 575,000 registered medical practitioners, or about 1 per 2000 people, a disproportionately low figure for a country with such an immense population.

Private sector

Private sector investment in the sector was opened up in 1983, to bridge the huge gap between demand and government-owned healthcare services. Since then, the private sector has grown significantly and presently accounts for Rs 690 billion, nearly 80% of healthcare expenditure. There are almost 9500 private hospitals and nursing homes in India, majority of them located in major cities, some of them equipped for providing the most modern state-of-the-art technology and equipment. However, more than 30% of the national bed strength is concentrated in 150-odd corporate hospitals. Important names in the private sector are Escorts, Apollo Hospitals, Max Health Centre, Fortis, and Wockhardt; several foreign healthcare chains have technical/financial tie-ups with Indian private healthcare chains.

Service capabilities

India is self sufficient in human resource skills in the sector- doctors, nursing staff, technicians, etc. In fact India is a major source for professionals in the medical field for many renowned hospitals around the world. Indian doctors routinely perform surgical procedures such as robot-assisted heart surgery, which reduces the risk and trauma associated with critical conditions. The leading super-specialty hospitals offer world-class medical services at par with international standards on average length of stay patient stay. There has been a significant decrease in the number of patients going abroad for treatment for open heart surgeries, organ transplants etc., as these are now available within the country.

The health care services (excluding pharmaceuticals) market is estimated to be Rs 600 billion (Euro 13.5 billion) and it is growing at the rate of 16 percent annually. Overcrowding in government hospitals and poor facilities, besides overburdened doctors, have made the public health sector languish in India. At 0.7 Million beds, India has a poor population-to-bed ratio of 1000:1, well below the WHO norm of 300:1.

Meeting the WHO norm would need an investment of at least Euro 5 billion in hospital infrastructure alone. The Government spends 6% of its outlay (including supplies) on healthcare, which is still inadequate. As a result, healthcare costs have been increasing, and have doubled during the past five years. About 78% of the total doctors in the country are in private practice. Only 13 out of 100 persons who fall ill, go to government hospitals, whereas the rest seek medical help from private practitioners, as per the Voluntary Health Association of India (VHAI).

Drugs and Pharmaceuticals

India has a highly competitive pharmaceutical industry, and has emerged as an important global player in bulk drugs and generic formulations. The sector has been growing by 15% or more during the past five years. The Indian **pharmaceuticals market is estimated at about Rs 260 billion** (about Euro 5.5 billion), with just 1.3%of the global market. The industry is highly scattered, and consists of more than 26,000 enterprises. However, there are less than 250 organized players, including a few multinationals such as Glaxo, Novartis, Hoechst, Abbot Labs, Burroughs Wellcome and Duphar Interfran. Interestingly, small and medium sized enterprises have a dominant share of the market, unlike in the developed countries where large, multinational drug producers control the market.

India's drugs and pharmaceutical industry is among the sectors most profoundly affected by the principles of multilateral trade, especially those relating to the harmonization of patent regulations and protection of intellectual property worldwide. From a scenario controlled by the global pharma giants, during the past twenty years, India successfully built a domestic generics and bulk drugs industry based on reverse engineering, protected by national patent laws that does not recognize product patents in drugs and also provides for shorter term of patent protection (seven years instead of 20 years prevailing in Europe).

India regulates domestic market prices for some essential drugs through a Drug Price Control Order (DPCO), which several global companies find un-remunerative given the enormous research costs in their development. On the other hand, the availability of adequate research skills and the lower costs of research, besides the non-applicability of patents to drugs, enabled Indian companies to replicate several expensive branded products and to release Indian equivalents at significantly lower prices. As a result, the industry also catered to a large third-world export market besides the traditional Russian and CIS markets.

The TRIPS agreement of the WTO enjoins India to introduce product patent regimes in pharmaceuticals, and accord protection in India to products patented in other member countries after January 1, 1995. However, there is serious concern as to whether Indian product patent provisions would fully address the intellectual property risks of international companies. Several Indian companies are preparing for the product patent regime by increasing R&D and manufacturing outside India in protected markets, notably the US. FDA approvals, involving strict and time consuming investigations and costing up to Euro 0.5 million per product are considered a strong entry barrier, which works in favour of the larger Indian companies having resources to support FDA registration costs. The initiative is already rewarding the early starters: long-term contracts for generics -worth Euro 2 billion- have been secured by enterprising companies that have obtained FDA approval for their Indian or overseas plants (some companies set up new facilities in the destination markets).

Technology and Equipment

The market for medical equipment in India is at Euro 1.6 billion today and is growing at 20% annually. The market is distributed over hospitals, nursing homes, clinics and diagnostic centres, although mainly in the private sector and in urban areas.

Though there is some local manufacturing of medical electronics and consumables, around 65% of India's demand for medical electronic equipment and consumables is currently met from imports. In 2001, the import of medical devices was estimated to close to US$ 1 billion. Imports dominate all higher end equipment such as imaging, cancer diagnostic and treatment and cardiology. There are more than 90 indigenous manufacturers of medical equipment, including several with foreign collaborations. Major foreign players active in this market include Siemens, GE, Philips, Inchem ATL, Network-Picker, Toshiba-STM and Hewlett Packard. Following import liberalization, many companies have preferred to serve the Indian market through import-based trading, through tie-ups with local companies for distribution and servicing.

Diagnostic laboratories

The entry of private players in healthcare insurance has resulted in a rising demand of specialized clinics and laboratories affiliated to healthcare insurance companies, in order to maintain high standards in the diagnostic process prior to processing applications. The market for medical laboratory instruments is estimated at about Euro 120-125 million and is growing at 20-30% per year. About 80-85% of the total demand is met through imports, for items such as electron microscopes, ELISA instruments/readers, spectrophotometers, multi-chemistry analyzers, radio immuno assay instruments/readers, instruments used in in-vitro fertilization, and high performance liquid chromatographers.

Large players like Max Healthcare and Gribbles (Australia) are also setting up chains of pathology labs in all major cities, to meet the growing demand from the insurance sector.

Growth trends

The overall expenditure on healthcare services, currently Rs 870 billion, is expected to increase to Rs. 2000 billion, by 2012. The sector will increase its contribution to GDP from the present 5% to nearly 8.5% by 2012. Based on demographic trends and disease profiles, lifestyle diseases-cardiovascular, asthma and cancer will become the most important

segments, and in-patient spending shall represent nearly 50% of total expenditure. The private sector share is projected to be Rs 1600 billion, boosted by increasing penetration of healthcare insurance. Health insurance is expected to generate a market spending of Rs 400 billion in healthcare services. India needs to add at least 80,000 beds each year to meet the growing demand for healthcare services, and to meet W HO norms on beds- to-population.

Besides growth in the domestic market, the healthcare sector is also poised for a rise in international revenues in the areas of expatriate health care (medical tourism), multi-location clinical trials, and IT-enabled services relating to hospital administration systems.

Medical Insurance

Less than 1% of India's population, have some sort of medical insurance cover. Even for those insured, the average insurance cover is less than Rs. 50,000. With the opening up of the sector to private insurers, there are now several private sector insurers, some of them offering medical insurance. The important international names in the sector are Allianz, Royal, Chubb, Lombard and Tokio Marine. In December 2002, the regulations were amended to provide for third party administrators, to increase the dispersion and also make medical insurance more consumer friendly.

Medical tourism

India's super specialty hospitals have earned their reputation as world-class institutions, with the state-of -the art technology, yet prices that are attractively low in comparison with the West. As a result, there has been a rapid growth in international patients from the Middle East and the Far East, as well as Europe, visiting India for medical treatment for cardiac and other major surgery. While this saves insurance companies claim related costs, it also reduces waiting times for patients by providing options to use approved medical facilities outside their own country. Some hospitals are gearing up for the international market and are obtaining accreditation

under international hospital standards and referral arrangements with global insurance companies.

Clinical trials

India offers a cost-competitive base (70-75% lower costs) for carrying out clinical trials for new drugs. The recent amendments in the Drugs Act have made regulations easier for foreign companies to carry out their clinical trials in India, simultaneously with other countries, for new drugs and formulations to be introduced in the world market.

Business Process Outsourcing

US regulations necessitate maintenance of hospital records involving the extensive use of IT. Transcriptions, patient records and claims processing are increasingly being outsourced to other countries including India, and the market opportunity is projected to be Euro 45 billion by 2006.Opportunities are interesting for companies willing to pass HIPAA (Health Insurance Portability and Accountability Act of 1996) accreditation norms of the US and similar norms in other countries.

Imports

Medical sector imports (US$ million)

Code	Nomenclature	1998-99	1999-00	2000-01	2001-02
841920	Medical Sterilizers and Autoclaves	2.46	1.78	2.89	2.94
9018	Instruments & appliances for medical, surgical use	220.26	225.03	283.79	336.48
9019	Mechano-therapy appliances	10.43	18.09	17.68	28.37
9020	Breathing appliances , gas masks……	2.32	2.1	1.37	2.67
9021	Orthopaedic appliances	17.49	19.41	19.92	29.61
9022	Radiography equipment	47.52	60.81	54.65	65.96
9402	Dentist chairs, Hospital beds	1.07	1.13	2.44	4.53

In addition to the above, substantial imports take place under Project Imports route, which are reported individually.

Origin of Imports 2001-02 (top three countries and The Netherlands), US$ million

Code	Nomenclature	Country 1	Country 2	Country 3	Netherlands
841920	Medical Sterilizers and Autoclaves	Singapore 0.56	USA 0.55	Australia 0.54	Nil
9018	Instruments & appliances for medical, surgical .. use	USA 103.14	German F Rep 68.56	Japan 46.78	11.54
9019	Mechano-therapy appliances	Korea RP 12.12	German F Rep 4.94	USA 3.32	0.26
9020	Breathing appliances , gas masks……	German F Rep 0.83	China P RP 0.62	USA 0.52	0.03
9021	Orthopaedic appliances	USA 12.64	Switzerland 3.28	Hong Kong 2.39	0.14
9022	Radiography equipment	German F Rep 16.50	Netherlands 10.85	USA 8.83	
9402	Dentist chairs, Hospital beds	USA 1.32	German F Rep 0.77	Japan 0.56	0.01

Germany and USA have been the leading suppliers of medical equipment to India. The share of Netherlands has been negligible.

Foreign Direct Investment

Foreign direct investment in Indian hospital projects has been from donor bodies like the IFC, CDC and, in some cases, healthcare service players like Gleneagles, Singapore and Cleveland Clinic, US. Several foreign collaboration proposals have not taken off despite approvals from the government due to various reasons. In medical and surgical appliances, a total of about 73 foreign collaborations have been approved. However, foreign investment values are not available as these are clubbed under the broader category of Electrical and Electronics equipment.

Government Programmes & Policies

The government has initiated several steps towards inducting private, including foreign, participation in the sector. The important steps in this regard have been:

- Partnerships with private healthcare companies for super-specialty hospitals to provide the latest state-of-the-art-techniques within India
- Reduction in import duties for high technology devices and capital goods
- Deductibility up to 150% of actual R& D expenditure in healthcare for calculating income tax liabilities
- Permissions for Indian pharma companies to raise money overseas
- Guidelines for health insurance by private sector including foreign companies
- The government has recognized hospitals as an industry thereby making it possible for banks and Investment Institutions to fund hospital projects, and provided for tax exemptions for new hospitals with 100 or more beds.
- Foreign Direct Investments (FDI) has been allowed in this sector with automatic approval up to 74% in hospital services, and upto 26% in insurance
- Some state governments have taken up telemedicine projects for providing health advice and treatment to patients in remote areas through a satellite connection. Karnataka is implementing a

telemedicine network of 27 coronary care units covering 27 districts.

Tax regime

The basic customs duty on imported equipment for the sector is 25%. However, the final effective duty, including the additional and special additional duty, ranges between 30% to 50.8%. The highest rate of 56.8% is applicable on some items such as radiography equipment, dentist chairs and hospital beds.

Life saving equipment and notified projects attract customs duty exemptions and concessions, depending upon the equipment specifications and proposed end-use. **In fact, significant imports of medical equipment take place in this category at zero duty.**

Government hospitals are allowed to import medical equipment and consumables free of customs duty if they provide free treatment to at least 40% of the patients and if the equipment is not manufactured locally. Medical research establishments run by the state are also allowed duty-free imports.

Import of used equipment is allowed provided it has minimum residual life of five years.

Projects (including plans of multi-lateral or bilateral institutions)

Most of the large, national level projects related with health and medical services, pertain to disease control programmes, for eliminating diseases such Polio, Leprosy, Kala Azar etc. The Pulse Polio Immunization Programme for eradication of polio has been hailed as one of the largest and most successful of it's kind in the world. WHO, UNICEF, USAID, Rotary International and the India National Polio Surveillance Project (NPSP), are jointly implementing and monitoring the programme, which targets 127 million children across 11 states in the country.

In the private sector, ADB has sanctioned its first ever private sector healthcare loan of US$ 20 million to Max Healthcare Institute Ltd., for creating an integrated healthcare system in the country.

Investment & Business Opportunities

- Hospital project design and consulting
- Trade in medical equipment and products, including warehousing, selling and servicing the latest medical electronics equipment, diagnostic kits, reagents and consumables
- Telemedicine systems, for treating patients in remote areas through a satellite connection.
- Corporate health care clinics for providing high quality basic services in consultation, diagnostics, minor surgeries etc.
- Business Process Outsourcing of medical transcriptions and other hospital management administration tasks.
- Joint ventures for offering medical insurance and other insurance services
- R&D base for new molecule development, clinical trials, etc., utilizing the high quality scientific manpower and low costs.

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Renewable Energy

The importance of increasing use of renewable energy sources in the transition to a sustainable energy base was recognized in India in the early 1970s. During the past quarter century, a significant effort has gone into the development, trial and induction of a variety of renewable energy technologies for use in different sectors of the economy and sections of society in India.

India has today a very large programme for renewable energy, covering all major renewable energy sources of interest to us, such as, biogas, biomass, solar energy, wind energy, small hydro power and the other emerging technologies. Several renewable energy systems and products have successfully commercialized.

The Government has taken up programmes for development, demonstration and utilization of various renewable energy based technologies, such as, solar thermal; solar photovoltaics; wind power generation and water pumping; biomass combustion/co-generation; small, mini, & micro hydro power; solar power; utilization of biomass - gasifiers, briquetting, biogas, improved chulha (cook-stove); geothermal for heat applications and power generation/energy recovery from urban, municipal and industrial wastes; and tidal power generation. The Ministry also deals with other emerging areas and new technologies, such as, chemical sources of energy, fuel cells, alternative fuel for surface transportation and hydrogen energy etc.

Over the years, there has been increased awareness of the benefits of renewable energy, due to the sustained public awareness generation campaigns of the government, using different media and through the various devices and systems displayed and demonstrated at exhibitions and fairs across the country. Energy parks have been set up in many institutions for demonstration and awareness purpose.

New and Renewable Sources of Energy – Potential and Achievement

	Potential	Achievement as on 31 December 2002
Solar Photovoltaics	20 MW/sq.m.	107 MW
Small Hydro	15,000 MW	1,463 MW
Wind	45,000 MW	1,702 MW
Biomass Power/Generation	19,500MW	468 MW
Bio gas Plants	12 million	3.4 mn
Waste-to-Energy	2,500 MW	25 MW
Improved Chullahs	120 mn	34 mn
Biomass Gasifiers		53 MW
Solar Water Heating	1,40 mn sq.m.	0.7 mn sq.m.

Source: MNES Annual Report

The medium term goal of the Government of India is to ensure electrification of 18,000 remote and unelectrified villages, and achieve a minimum 10 per cent share or 10,000 MW, from renewable energy in the power generation capacity to be added by the year 2012.

Main sub-sectors are:

Power

The share of renewables in the total power generation capacity of the country has been continually rising. Renewables presently contribute about 3700 MW, which represents about 3.5 per cent of the total installed capacity from all sources.

Solar Power

India receives solar energy equivalent to about 5000 trillion KWhr/year, which is far more than the total energy consumption of the country. The daily average solar energy incident over India varies from 4 -7 KWhr/m^2 depending upon the location.

The solar grid power programme has two components- the thermal conversion technology and the photovoltaic technology. The solar thermal power programme has made considerable progress with the approval for the proposed 140 MW Integrated Solar Combined Cycle Power Project at Mathania in Rajasthan with financial assistance from the World Bank/GEF and KfW of Germany.

India's Solar Photovoltaics Programme is among the world's largest programmes in Solar Energy. In India there are about 300 clear sunny days in a year and solar energy is widely available in most parts of the country. Solar photovoltaic technologies offer a unique decentralized option for providing electricity locally. A country wide Solar Photovoltaic Programme is being implemented by the government, aimed at developing cost effective PV technology and its applications for large scale diffusion in different sectors, especially in rural and remote areas. Major components of PV programme include:
Solar Street Lighting Systems, Solar Lanterns, Home Lighting Systems/Solar Home Systems;
Stand-alone PV Power Plants;
Solar PV water pumping systems for agriculture and related uses;
Other applications of PV Technology including new applications.

PV systems of about 83 MW aggregate capacity (about 920,000 systems), have been installed for various applications in the country, including Export of about 29 MW SPV product. This includes 385,000 solar lanterns; 1,80,000 home lighting systems; 41,000 street lighting systems, 4204 water pumping systems and of about 1.2 MWp aggregate capacity of stand alone power plants/packs.

The solar photovoltaic power programme aims at providing voltage support in the remote sections of weak grids, on public buildings in urban centres for peak load shaving and as diesel savers on islands. 31 grid-interactive SPV power projects with a capacity of 2.5 MW have been installed and projects with an aggregate capacity of 550 KW are under installation.

Hydro-power

India ranks fifth in the world for hydropower potential with an estimated 150,000 MW, yet only 17% of this potential has been harnessed so far. Despite hydro-electric projects being recognised as a clean, renewable and economically preferred source of electricity, the share of hydro power in the country has been steadily declining from over 50% in 1963 to 25% in 2001. Much of the hydro-electric potential that remains to be tapped is located in the ecologically fragile Himalayan region and in more difficult locations. Small hydro projects, mainly private, have the potential to provide energy in remote and hilly areas where extension of grid systems is either not possible or uneconomical.

The potential for power from small hydro power projects of up to 25 MW capacity is estimated at about 15,000 MW. 453 projects with an aggregate installed capacity of 1,463 MW have been set up so far. A database of 4,215 potential sites with an aggregate capacity of 10,279 MW, has been prepared. As part of the UNDP-GEF Hilly Hydro Project, a detailed exercise was undertaken to prepare zonal plans for 13 participating states in the Himalayan and sub-Himalayan region.

Wind Power

Harnessing of wind power for electricity generation is a fairly recent phenomenon in India. The country has achieved an installed capacity of 1426 MW for electricity generation through wind power, against the estimated total potential of around 45,000 MW. The unit size of machines has gone up from 55-100 kW in the first few projects to 400-600 kW in recent installations, with higher productivity. India is now ranked 5th in the world after Germany, USA, Denmark and Spain in wind power production. Private investments dominate this sector. Over 50% of the installed capacity is in a single state- Tamil Nadu. Muppandal in TamilNadu continues to have one of the largest concentration of wind farms in the country. Satara in Maharashtra and Jogimatti in Karnataka have attracted a number of investors to set up wind farm projects. A total of 201 potential sites for wind power projects have been identified.

In India, annualised costs of wind power projects, over the life of the project compare quite favourably with those for new thermal power projects located away from coal mining areas.

Solar Thermal Energy

Use of solar energy is being promoted for a variety of applications like cooking, water heating, drying of farm produce, water pumping, home and street lighting, power generation for meeting decentralised requirements in villages, schools, hospitals, etc. Solar water heating systems are becoming increasingly popular. Hotels, hostels, hospitals, and other large institutions have gone in for these systems. Water heating systems with a total collector area of 680,000 sq. m have been installed against an estimated potential of 140 million sq.m. State Governments have been advised to make necessary provisions in the building bye-laws to make it mandatory for certain buildings to incorporate solar water heating systems.

Besides promoting the box solar cooker, the Ministry's programme promotes three types of solar concentrating cookers. The dish Solar Cooker caters to 10-15 persons at a time, the Community Solar (Scheffler) Cooker for 35-40 persons and the Solar Steam Cooking System, which can cook for a few thousand persons. The world's largest solar steam cooking system has been commissioned at Tirumala Tirupati Devasthanam. Over the last few years, 500 dish solar cookers and 60 community solar cookers for indoor cooking have been installed in the country and many more are under installation.

Solar air heaters are gradually becoming popular among industries which require hot air at low temperature ranges as process heat for drying. Use of solar air dryers can help substitute or supplement conventional heating systems, resulting in lower fuel consumption. Solar building concepts incorporate climate responsive building designs with optimum use of solar energy and other forms of ambient energy helping to reduce the power consumption to keep the interior of a building comfortable. A comprehensive database and a user-friendly interface for sustainable building design are currently being compiled by Tata Energy Research

Institute, New Delhi. A number of R & D projects are under way under the solar thermal programme.

Biomass energy

The technologies for distributed power production from captive and field-based biomass resources are becoming more and more perfect. The potential for power production from these resources is assessed at 19,500 MW including 3,500 of exportable surplus power from bagasse-based cogeneration in sugar mills and 16,000 grid quality power from other biomass resources. Against this potential, the total installed capacity is 468 MW and projects of 530 MW capacity are under various stages of implementation. A number of technologies have been developed indigenously for gasification and briquetting of biomass materials. Leading institutions across the country are being supported for conducting research and development projects to further improve these technologies. A total of 1806 biomass gasifier systems aggregating 53.16 MW (equivalent) have been commissioned in 22 States and the UTs.

Waste-to-Energy

The wastes generated due to rapid urbanisation and industrialisation is another source of non-conventional source of energy. An estimated 40 million tonnes of solid waste and
5, 000 million cubic metres of liquid waste are being generated annually in the urban areas of the country. The potential exists for generating about 1,500 MW of power from urban and municipal wastes and about 1,000 MW from industrial wastes in the country. The installed capacity of waste to energy projects stands at 25 MW. A project for generating 4 MW power from starch industry solid waste is under installation at Samalkot in Andhra Pradesh. A demonstration project for generation of 5 MW (net) power and 75 tonnes of bio-fertiliser per day from about 500 tonnes of municipal garbage of Lucknow city is at final stage of installation.

Biogas Plants

Biogas plants enable efficient use of locally available energy sources in rural areas, by recovering the energy from cattle dung, human waste and

non-woody organic wastes without losing their manurial value through biogas plants. Against an estimated potential of 12 million biogas plants, about 3.44 million family type plants have been set up so far, representing coverage of over 28 per cent of the potential. In addition, about 4000 nightsoil-based and institutional biogas plants have been set up. These plants have helped save 4.4mn tonnes of fuelwood, produced 45mn tonnes of manure per year. An estimated 4.5 million person-days of employment has also been generated in the rural areas. R&D efforts are being taken up to develop new designs and improve the efficiency of biogas plants in different geographical and climatic conditions.

Fuel

The improved chulhas (cook stoves) ensure improved efficiency of burning of fuels and provide a smokeless kitchen. A target of 165,000 improved chulhas has been planned. The rural energy needs of 860 blocks are being planned through the provisions of the Integrated Rural Energy Programme (IREP).

Transportation

Ministry of Non-Conventional Energy Sources has an active Alternative Surface Transportation Programme which includes zero emission electric vehicles and hybrid electric vehicles, bio-fuel vehicles, fuel cell and hydrogen vehicles. Zero emission electric vehicles have been developed by Bharat Heavy Electricals Ltd., which is India's leading public sector corporation dealing with the energy and related sectors. India is among the leaders in the manufacture and deployment of electric vehicles for passenger and public transportation.

Chemical Sources of Energy

The main objective of the programme is the development and applications of fuel cell technology which produces electricity, water and heat through reaction between hydrogen and oxygen. The fuel cell technology offers high conversion efficiency, modularity, compactness and noise-free operations.

A fuel cell vehicle with indigenously developed PEMFC is run for field performance evaluation. Efforts are on for indigenous production and wider applications of fuel cell systems in the country.

Hydrogen Energy

Hydrogen Energy as a clean fuel and energy carrier can be used in a broad range of applications as a possible substitute to fossil fuels. MNES has taken up R&D projects on various aspects of hydrogen energy including production, storage and uses of hydrogen as a fuel. The application of hydrogen in fuel cells for power generation has been demonstrated. Hydrogen fuelled small power generating sets, two wheelers and catalytic combustion systems for industrial and residential sectors have also been developed and demonstrated.

Geothermal Energy

Projects taken up by MNES demonstrated the applications of geothermal fluids for small-scale power generation and in poultry farming and greenhouse cultivation. With support from MNES, the Geological Survey of India is working on a comprehensive report on the assessment of geothermal resource potential for direct heat application and power generation.

Tidal Energy

The realization of ocean thermal energy, in the form of temperature gradients, waves, tides, and ocean currents, is at present limited due to large technological gaps and absence of infrastructure needed. Some potential sites for development, have been identified in the Gulf of Kuchch, Gulf of Cambay in Gujarat and the Delta of the Ganga in Sunderbans area in West Bengal.

Government Programmes

The Indian Ministry of Non-Conventional Energy Sources (MNES) provides financial incentives, such as interest and capital subsidy for more renewable energy. In addition, soft loans are provided through the Indian Renewable Energy Development Agency (IREDA), a public sector company of the Ministry and also through some of the nationalised banks and other financial institutions. The Government also provides various types of fiscal incentives for renewable energy sector. These include 100% depreciation in the first year of the project, exemption/reduction in excise duty, exemption from central sales tax, and customs duty concessions on the import of material, components and equipment used in renewable energy projects. MNES has issued a set of guidelines to all the States suggesting that they should set general policies for purchase, wheeling and banking of electrical energy generated from renewables. Twelve states have so far announced such policies in respect of various renewable energy sources. Solar power, for example, has a potential estimated at 20 MW/sq.km through solar photo-voltaic (SPV) and 35 MW/sq.km through solar thermal plants. An integrated solar combined cycle thermal plant being set up in Rajasthan with a capacity of 140 MW. Biomass accounts for nearly 30% of the primary energy supply and has a potential of 20,500 MW capacity through biomass conversion technologies, targeting primarily rural populations.

The Ministry has taken steps to strengthen its administrative structure to promote effective implementation of its programmes. It has nine Regional Offices, three specialised Technical Institutions and one Financing Agency under it which function to promote the policy and programme initiatives. The States in turn have been advised to lay in place conducive policies for commercial development in this sector. The Ministry has also prepared a draft Renewable Energy Policy Statement to give thrust to these programmes. The Electricity Bill, now before the Parliament, also contains several provisions to promote accelerated development of power generation from non-conventional sources.

International Cooperation

Bilateral Co-operation with European Union

Indo-Finland Joint Working Group on Energy and Environment

In the India-Finland Joint Working Group on Environment (JWG) meeting held in October 2002, both sides evinced interest in expanding the co-operation, particularly in areas of advanced biomass gasification, waste to energy and CDM.

Indo-German Renewable Energy Co-operation

In the Indo-German Bilateral Consultations during December 2002, discussions were held for the second KfW line of credit to IREDA and assistance for the Integrated Solar Combined Cycle Power Project at Mathania, Jodhpur, and Rajasthan.

The DM 120 million KfW Germany line of credit to IREDA for providing loans to commercial projects in wind energy, baggase based co-generation and solar photovoltaic areas is under implementation.

Indo-French Co-operation in Renewable Energy

During several rounds of consultations during 2002, both sides agreed to further co-operation between SEC in India & GENEC in France in the field of battery testing & hybrid models, SPV-biomass hybrid project in Sunderbans and wind-diesel project in Lakshadweep. Besides, tidal energy and geothermal energy were identified for co-operation.

Indian Renewable Energy Mission to Europe

MNES in collaboration with Confederation of Indian Industry (CII) fielded a Renewable Energy mission to The Netherlands, United Kingdom and Switzerland during June, 2002 to explore the business

opportunities in renewables between India and EU countries. The specific outcomes of the visit were

a) Signing of Statement of Intent between IREDA and Basel Agency for Sustainable Energy (BASE), Switzerland and implementing a programme of Indo-Swiss partnership for electrification of remote villages in India, and

b) Signing of Agreed Minutes between C-WET, India and ECN, Netherlands for undertaking joint projects in wind energy development in India. Besides, the mission held discussions with counterpart ministries/ departments and industry representatives for enhancing technical and business co-operation in the area of renewable energy.

Multilateral Cooperation

UNDP/GEF

Under UNDP/GEF project on selected options for stabilising greenhouse gas emissions for sustainable development, four project briefs for possible GEF assistance in the areas of solar thermal technologies, rural electrification, biomass gasification for thermal application and energy recovery from solid waste have been prepared. Total estimated GEF component of these projects is about US $ 26 million.

The project brief "Removal of Barriers in Biomass Power Generation in India" with GEF component of US$ 10million was approved by the GEF council.

UNDP/GEF assisted projects on "Development of High Rate Biomethanation Processes as a Means of Reducing Green House Gases Emission" and "Optimising Development of Small Hydel Resources in the Hilly Regions of India" is under implementation.

World Bank /GEF

The thrust areas of Climate Change Partnership (CCP) are renewable energy and energy efficiency. CCP aims at market expansion besides

renewable energy applications for rural electrification and introduction of high efficiency agricultural water pump sets.

The World Bank has extended loan assistance to the "Second Renewable Energy Project" for US$ 135 million, which is being implemented by IREDA.

Asian Development Bank Line of Credit to IREDA

The Asian Development Bank Portfolio of US$ 100 million for the "India Renewable Energy Development Project" has been completed on the 31st July 2002.

ADB has also extended technical assistance for the project "Promotion of Renewable Energy, Energy Efficiency and Green House Gas Abatement (PREGA)" to stimulate investments in renewable energy and energy efficiency technologies and to generate a pipeline of such investment projects for financing from Global Environment Facility (GEF) and Clean Development Mechanism (CDM).

Opportunities

Investment: There is a large potential for investment by foreign investors in renewable energy power based on Wind, Solar Photovoltaic, Solar Thermal, Small Hydro, Biomass, Co-generation, Geothermal, Tidal and Urban & Industrial Wastes.

Consultancy:
Renewable Energy Resource Assessment.
Renewable Energy Policy and Programme Formulation.
Development of Renewable Energy Pilot Projects for Demonstration.
Pre-feasibility/feasibility studies and Detailed Projects Reports (DPRs) for Renewable Energy Projects.

Water Sector –Drinking water and Water Treatment

Market Size & Market Development

India's National Water Policy recognizes water as a prime natural resource, a basic human need and a precious national asset. Accordingly, the water allocation priorities have been placed as follows: Drinking water, Irrigation, Hydro-power, Ecology, Agro-industries and non-agricultural industries, Navigation and other uses.

The total availability from surface water and replenishable ground water is 1869 billion cu.m. of which about 60% i.e. 690 billion cu.m. from surface water and 432 billion cu.m. from ground water, can be put to beneficial use. The supply has not kept pace with the growth in demand for drinking water, due to deteriorating groundwater resource, compounded by water pollution, further reducing the availability for drinking use.

The Indian government plans to soon implement an Integrated Water Policy**, with major emphasis on ensuring appropriate quality, recognizing the need for w**ater treatment of wastewater, surface water as well as desalination of sea water, and water treatment solutions for the municipalities or industries of all kind.

Drinking Water

Despite high priority being attached to providing drinking water to all rural areas, a large part of India, especially rural India, does not have access to piped drinking water. In 2001, only 70 million households in India i.e. about one-third of the population, have access to piped drinking water. Nearly 35 million households were dependent on wells for their drinking water needs, and nearly 80 million households, on hand pumps and tube wells.

However, the magnitude of the task on a geographical level, and the concurrent nature of the subject (governed by union as well s state laws)

make implementation a difficult task, despite the presence of several NGOs and availability of donor financing. Tariff fixation has been one of the major issues deterring the entry of private sector in drinking water supply, as there were no clear provisions on constitutional authority of private bodies to sell water. An important milestone that addresses issues of constitutional authority and jurisdiction is the 74th Constitutional Amendment, which recognizes state level Urban Local Bodies (ULBs) and empowers them to plan and administer water supply projects within their jurisdiction including rights to create tariff structures. Some states, notably Tamil Nadu and Karnataka, have taken the lead in this respect and created bodies for water supply and management.

As a result of the poor quality of water in many areas, there has been a growing demand for bottled drinking water in urban areas. The market for bottled drinking water is estimated at Euro 200 million, with a potential of reaching Euro 10 to 15 billion. MNC majors like Coca Cola, Pepsi, and Nestle, are already significant players in the market besides a large number of Indian brands.

Water Quality Issues

The deterioration of water quality in various water bodies is due a number of factors, listed below:

Rivers	Groundwater	Lakes and Reservoirs Pollution
• human activities such as agriculture, deforestation • release of untreated domestic or industrial wastes • Uncontrolled discharge of industrial wastewater • River Eutrophication	• Unsewered Domestic Waste • Disposal of Liquid Urban and Industrial Waste • Disposal of Solid Domestic and Industrial Waste • Cultivation with Agrochemicals • Salinity from	• Contaminants, in solution inflow or adsorbed onto particulate matter, from the rivers draining into the lake. • groundwater systems flowing into lakebeds. • wet and dry

• Salinisation • Changes in River Hydrology	Irrigation • Geological Formations	atmospheric deposition of contaminants to the lake surface

Thirteen states in India have been identified as endemic to fluorosis due to abundance in natural occurring fluoride bearing minerals. These are A.P., Gujarat, Haryana, Orissa, Punjab, Rajasthan, Tamilnadu, U.P., Karnataka, Madhya Pradesh, Maharastra, Bihar and Delhi. There are nearly half million people in India suffering from ailment due to excess of fluoride in drinking water.

The ground water in Assam and Orissa has high iron content, resulting in homochromatosis, due to prolonged accumulation of iron in the body.

Many states (Rajasthan, Gujarat, Punjab and Haryana) have high incidence of salinity in ground water.

Arsenic contamination in ground water has been reported in shallow aquifers in many parts of West Bengal.

Water Treatment

Treatment of water from various sources, for making it suitable for drinking, industrial, household purposes has been a major challenge. Tube well water was heavily promoted and developed as a safe and environmentally acceptable alternative to microbiologically unsafe untreated surface water. However, in the mid 1990s, the Indian government stepped up its efforts to aggressively fight back against arsenic, a poisonous element contaminating drinking water in many regions of the country. UNICEF was one of the first international relief agencies, to join the government's efforts, by introducing technologies for groundwater treatment.

The problem of water contamination is not confined merely to rural areas. A case in point is the situation in Delhi, where for a city spread over 1,400 sq.km, with a population of 14million, **the Delhi Jal Board** has a staff of 36

persons and just six zonal laboratories where samples of drinking water are tested. These laboratories are situated at the water treatment plants that are prohibited areas, located at long distances from the city. One of the measures initiated was for setting up of Common Effluent Treatment Plants (CETPs) for wastewater discharged by small-scale industries. A total of 83 such plants have been approved to be set up in 12 States.

India has a reasonably well-established and cost-competitive water treatment equipment industry; it is estimated that the equipment made locally in India is about 30 percent cheaper than imported equivalents due to high import duty. This share of indigenous goods in the sector is almost 90%. However, Indian firms have limited capabilities in design/technology of water treatment plants. Therefore, there exists a distinct opportunity for foreign companies to offer technical consultancy services through the contractual and/or joint venture route.

Imports

Table: Water Sector imports **Figures in US$ mn**

ITC Code	Description	1998-99	1999-00	2000-01	2001-02
Drinking water					
2201	Water, including mineral water	0.12	0.49	0.75	0.38
Water Treatment					
84198903	Water treatment plant	0.3	0.06	0.72	0.33
84198904	Waste Water treatment plant	no record	0.26	0.330	0.03

Origin of Imports 2001-02 (top three countries and The Netherlands), US$ million

Description	Country 1	Country 2	Country 3	Netherlands
Water, including mineral water	France 0.29	USA 0.04	Malaysia 0.02	Nil
Water treatment plants	USA 0.24	UK 0.06	Japan 0.02	Ni
Waste water	China 0.01	Italy 0.01	-	Nil

treatment plants				

Foreign Direct Investment

Separate FDI data is not available for the sub-sectors, as each of these categories are included under broader headings in the FDI data published by Ministry of Commerce & Industry, such as bottled drinking water under food processing (152 foreign collaborations) and water treatment under Environment protection (140 foreign collaborations).

Government Programmes

Development Promotion Plans/Incentive schemes

Drinking water: Rural water supply is a State subject. The State Governments have been implementing the Rural Water Supply Programme, with Central Government assistance, through the Rajiv Gandhi National Drinking Water Mission (RGNDWM) under the Accelerated Rural Water Supply Programme (ARWSP). The main objective of the Mission is to cover the residual Not Covered (NC), Partially Covered (PC) and quality affected rural habitations.

Inter-linking of rivers: To overcome the regular problem of drought in one part and floods in another part of the country at the same time, the Government proposes to link 37 rivers flowing through various states all over the country, to transfer water from surplus areas to regions facing scarcity through 30 links across 9,600 kms, connecting 32 dams and using 56 million tones of cement and 2 million tones of steel. The project cost is estimated at Rs 5600 billion (about Euro 120billion).

Tax regime

The import duty on water treatment plants of all kinds is 50.8%. The import duty on drinking water is 56.8% for branded and 35.2% for unbranded products.

Projects (including plans of multi-lateral or bilateral institutions)

Drinking water supply to be organised under Local Urban Bodies. Karnataka and Tamil Nadu have taken the lead in this direction and other states are also expected to follow soon.

Inter-linking of rivers: The Supreme Court directed the Government to set up a Task Force to work out the modalities for completing he project within ten years and also for evolving a consensus among the states.

The World Bank is currently operating 4 projects in water supply and 2 in sanitation and sewerage improvement, with a total commitment of about US $ 700 million.

In the past few years, The World Bank has funded Water Resources Consolidation Projects in Haryana, Tamil Nadu and Orissa, aimed at improving productivity and sustainability of irrigation Sector, multi-sectoral water planning, development and management. In addition the World Bank has also funded irrigation projects in Andhra Pradesh. In all World Bank' commitment amounts to more than US$ 1300 million in the water sector.

The European Community (EC) is also funding several projects in various states, for modernisation of tank irrigation system, minor irrigation projects and saline land reclamation project

Overseas Economic Co-operation Fund (OECD), Japan is another external aid agency actively involved in water sector, mainly for improving the irrigation systems

Water Quality Assessment Authority

In view of the multiplicity of agencies involved in water management, leading to lack of co-ordination, the Government of India has constituted the "Water Quality Assessment Authority (WQAA)" with effect from 29th May, 2001. The 12-member Authority is headed by the Secretary, Ministry of Environment & Forests as the Chairman and the Commissioner (Water Management), MOWR as the Member Secretary. The other members comprise top officials from the Ministry of Agriculture & Co-operation, Ministry of Urban Affairs and Poverty Alleviation, National River Conservation Directorate, Central Ground Water Authority, Central Water Commission, Central Pollution Control Board. Indian Agricultural Research Institute and the National Environmental Engineering Research Institute.

The government has recognized the need for state level "Water Quality Review Committees".
The main tasks of the Water Quality Assessment Authority are:

- Review of the present water quality monitoring programme.
- Aims and objectives of the authority.
- Constitution of the State Level Water Quality Review Committees.
- Creation of co-ordination cell in MOWR.
- Identification of priority areas for action.

Investment & Business Opportunities (five year horizon)

Drinking water projects:

- Planning and administration of water supply projects with state level Local Urban Bodies
- Pricing models
- Drafting of state water policy
- Management of distribution supply systems

Water treatment

- Joint ventures with Indian firms to offer integrated solution in water treatment - from performing feasibility studies, design/technical consultancy to providing operation and on-line maintenance services.

Water Transport and Ports Sector

Market Size & Market Development

Water Transport

India is one of the leading maritime nations of the world with 6.8 Million Gross Registered Tonnage (GRT) rating 17th in the world. Indian ships carry about 30% of the cargo in India's import and export trade. India also has a coastal shipping industry, which is the most energy efficient and cheapest mode of transport for bulk goods. However, the operations have been fast declining due to lack of commensurate support infrastructure, poor condition of coastal fleet and imbalance in coastal traffic. As a result, 70% of ship time is spent at ports and only 30% on voyage.

Inland Water Transport

India has 14,500 km of navigable waterways – rivers, canals, backwaters, creeks, etc., of which about 3,700 km is navigable by mechanized crafts, but actually only 2,000 km is being used. Only 160 tonnes of cargo were transported through Inland Water Transport in 2001. Inland Water Transport is a priority only for some states such as Kerala, West Bengal, Assam, parts of North Eastern region and Goa where IWT exists in an organized form. Some states, such as Kerala, are working on specific projects for expanding the IWT infrastructure and integrating it with the other modes of transport. However, in the national context the importance of inland waterways has declined considerably in recent times, mainly due to expansion of road and rail transport, diversion of river water for irrigation, deforestation of hill ranges leading to erosion, accumulation of silt in rivers, and failure to modernize the fleet to suit local conditions. However, the Inland Waterways Authority of India is keen to exploit the advantage of national waterways for creating an intermodal mix with road and rail transport, and also linking the waterways to the ports.

Port Management

India has a long coastline of 7,516.6 kms, serviced by 12 major ports and 184 minor and intermediate ports (including 139 minor working ports).

The major ports, with an aggregate capacity of 345 million tonnes, handle 75% of India's port traffic (288 million tonnes in 2001-02). However, the traffic growth and share of minor and intermediate ports has been growing in the last three years. Most major ports offer a combination of some dedicated bulk terminals, a few specialized container terminals and a majority of conventional and general cargo berths. However, six of these, namely Kolkata, Mumbai, Chennai, Cochin, Visakhapatnam and Marmugoa are 70 to 130 years old. The remaining - Kandla, New Mangalore, Paradip, Tuticorin, JNPT and Ennore were established between 1952 and 2001.

The operational efficiency in the ports has improved over the years, and the waiting time at anchorage has been almost eliminated. The following indicators reflect improvement in the performance at Ports:

- Average Pre berthing detention reduced from 0.77 days to 0.41 days during 2000 - 01.
- Average Turn around time also reduced from 7.84 days to 4.08 days during 2000 - 01.
- Average Ship berth day output increased from 6321 tonnes to 7889 tonnes during 2000 -01.

Major ports are administered and run by the Central Government, under the Major Port Trust Act 1963 and Indian Ports Act 1908, while minor ports are governed by the respective state governments.

Privatization

In 1996, the Indian government decided to open the ports to private sector, as it did not have the funds needed to expand the capacity. The strategy adopted was to lease out terminals to private operators on BOT (Build , Operate - for 30 years- and Transfer) basis or form Joint Ventures (JV) between an Indian port and a foreign port.

Privatization of ports has been a slow process on account of legislative impediments including definitions that precluded corporate ownership and management rights over port assets and the coastline. As a result, there are only a few private ports in operation. The government has

introduced legislative amendments in the Ports Act to include enabling clauses for corporatisation of major ports. Once the bill is passed in Parliament, the process of privatization of the major ports will start in earnest.

Privatization in the sector includes building and operating new ports, managing existing ports and/or services in existing ports, and construction contracts for upgradation of capacity at major ports. Several Indian and international players have invested nearly Rs. 12,000 crores (Euro 2.4 billion) – either in privatization or in green-field projects. The total amount of FDI in ports over the last four years is estimated at Euro 1 billion. Already six private ports are operational and three more are on the way, as shown in the table.

Pipavav Port, in Gujarat, was the first port in the country to be developed with private sector participation, and serves the northern region of Gujarat and India whose contribution to Indian export trade is 35%. Mundra Port (also called Gujarat Adani Port Ltd.) is the second biggest port in Gujarat. Ennore Port Limited in Tamil Nadu, the first port set up as a corporate body, was inaugurated in February 2001. Nhava Sheva International Container Terminal Ltd. is Indian's first private sector Container Terminal, developed at the Jawaharlal Nehru Port. It is built, operated and managed by a consortium, led by P&O Australia Ports Pty. Ltd.

Private Ports in India

Location	Operator	Cost (EU Mn.)	Capacity (Mn. Teus)	Status
Nhavashewa (Maharashtra)	P&O (Australia)	280	1.3	Operational w.e.f. March 1999
Mundra	P&O (Australia)	195	1.5	Operational w.e.f. July2003
Pipavav (Gujarat)	Sea King (India)	170	0.1	Operational w.e.f. July

				2002
Chennai (Tamil Nadu)	P&O (Australia)	125	1.5	Operational w.e.f. December 2001
Tuticorin	PSA (Singapore)	100	0.75	Operational w.e.f year 2000
Visakhapatnam (A.P)	United Liner (India) & Dubai Post (Dubai)	25	0.5	Operational w.e.f. June 2003
JNPT (Maharashtra) – 3rd container berth	Bidding on – 10 bidders shortlisted	N.A.	N.A.	Identified for privatisation
Kochi (Kerala)	Pre-bid stage	N.A.	N.A.	Identified for privatisation
Kandla (Gujarat)	Pre-bid stage	N.A.	N.A.	Identified for privatisation

(Teu : Twenty-foot container Equivalent Unit)

The first results of privatisation are already visible – the turn around time for ships has dropped from 8.1 days in 1990-91 to 3.7 in 2001-02. The turn around time at JNPT, Mumbai – a privately operated terminal run by P&O Australia- is just 16 hours as compared to 30 hours at the government-run terminal located nearby.

There are presently more than 40 projects under various stages of evaluation and implementation, involving capacity addition of 160 million MT and entailing an investment of Rs 108 billion by private sector.

Future trend: The traffic at ports is expected to rise from 300 million tonnes per year at present to 850 MT per annum by 2009-10 and 1275 MT by 2020. The projected **capacity** addition during the Xth plan (2002-07) is 160 MT (including 56.60 MT from the ongoing projects/schemes from previous Plans). **The overall investment required in the ports sector**

has been estimated to be Euro 15-20 billion, of which nearly 70% is proposed to be attracted from the private sector.

Imports

Table: Water Transport and Ports Sector imports *Figures in US$ mn*

ITC Code	Description	1998-99	1999-00	2000-01	2001-02
Water/Inland Water Transport					
8901	Ships, Launches, Barges, Boats.. of all kinds	160.71	294.9	80.5	148.41
8902	Fishing vessels……	Nil	Nil	Nil	16.57
8903	Yatchs and other vessels (pleasure/sports)	0.23	0.44	0.11	1.36
Port Management					
8426	Ship's Derricks, ……..	33.98	19.78	34.63	25.01
8904	Tug boats & pushers	3.07	121.78	6.13	278.77
8905	Light vessels, ...dredgers, floating docks etc.	47.72	146.16	212.66	130

Origin of Imports 2001-02 (top three countries and The Netherlands), US$ million

Code	Country 1	Country 2	Country 3	Netherlands
Ships, Launches, Barges, Boats….. of all kinds	Japan 37.16	Liberia 34.79	Korea 22.28	1.96
Fishing vessels……	Bolivia 11.91	Mauritius 3.03	Sierra Leone 0.89	Nil
Yatchs and other vessels (pleasure/sports)	UAE 1.15	Korea 0.10	Denmark 0.06	Nil
Ship's Derricks, ……..	Germany 13.43	Spain 2.88	France 2.41	0.26
Tug boats & pushers	Japan 268.01	Singapore	Liberia 1.51	Nil

		4.46		
Light vessels, ….dredgers, floating docks etc.	Netherlands 67.55	USA 28.46	Germany 8.28	

Foreign Direct Investment

Separate FDI data is not available for the shipping and port management, as these categories are included under broader headings in the FDI data published by Ministry of Commerce & Industry, such as shipping included in transportation industry (577 foreign collaborations) and ports equipment under industrial machinery and other engineering industries (about 1200 collaborations approved).

Government Programmes

Disinvestment schemes: The disinvestment of **Shipping Corporation of India** is to be re-started, allowing foreign companies to acquire 51% equity offered by the government. This move was necessitated after the initial package restricting foreign equity to 25% did not generate much interest.

Development Promotion Plans/Incentive schemes

Shipping: Several policy initiatives have been taken to boost the shipping industry:

- Simplification of regulatory procedures for raising resources from commercial markets and external borrowing at competitive prices, including foreign exchange loans
- Release of foreign exchange without any value limits for import of capital goods and spares for ship-repair / dry docking
- Foreign Direct Investment (FDI) upto 100% is permitted in shipping sector with specific approval, and on an automatic basis upto 74%)

Inland Water Transport: The Government of India has decided to give 90% grant instead of 50% reimbursable loan to States for development of the Inland Water Transport Sector. For this, the Government has

sought assistance from the World Bank and the Asian Development Bank for Inland Water Transport Development.

The IWAI has been empowered to enter into commercial/joint ventures to encourage investment in this sector and also to raise tax-free bonds for mobilising funds from market as provided for other infrastructure sectors.

Policy guidelines have been framed for encouraging private sector participation:

- 100 % tax exemption to the investors for 5 years and 30 % in the next 5 years to be availed of within the period of 20 years.
- 20% depreciation for all vessels ordinarily operating in National waterways, at par with ocean going vessels.
- 30% vessel building subsidy (for National Waterways) for inland water vessels built in Indian shipyards.
- Concessional customs duty on imported equipment and machinery to be used for the development of inland waterways.

Ports

- 100% FDI allowed under automatic route in projects for ports and harbours.
- FDI up to 51% is allowed on automatic basis in support services like operation and maintenance of piers and loading and discharging of vessels.
- 10 Years tax holiday out of 15 years.
- Tariff Authority for Major Ports created for tariff regulation.
- Major ports allowed to enter into joint ventures with foreign ports/companies

Restrictions/Barriers

Important amendments to the Ports Acts have not yet been passed by Parliament. These amendments relate to the process of authorizing the government to transfer port undertakings to the private operator/ successor and to define the scope of transfer and concession rights. As a

result, the process of privatization remains slow. Meanwhile, the privatization of major ports is being done on a "landlord" model – with the private companies being responsible for operation and management of port services only, while the government will continue to own and control the land and water front.

Tax regime

Water transport and ports equipment attracts duty ranging from 30% to 35.2%. The import duty on sports and pleasure boats is higher at 56.8%.

Projects (including plans of multi-lateral or bilateral institutions)

Inland water transport: The Government of Kerala has identified three waterways in the state for developing an intermodal transport system, for which a detailed report is under preparation, with World Bank assistance.

Extensive investment required for modernization of almost all the existing ports. In addition, to facilitate coastal movement, about 20 additional ports are required along the coastline.

The Asian Development Bank has initiated a technical assistance mission for the Inland Waterways Transport sector, providing US $ 1.125 million for appointing consultants for updating studies and preparation of IWT investment projects before sanctioning assistance.

Sagarmala Project:

The ambitious Sagarmala project was announced by the Prime Minister on August 15, 2003. With an estimated cost of about Rs 100,000 crore (about 20 billion Euros), the scope of this project would be very wide, not only covering ports and the shipping sector but coastal shipping, inland water transportation and the entire gamut of issues related to the maritime sector, including modernisation of minor ports.

The project is also aimed at giving a boost to the tourism industry by projecting India as a cruise destination and providing additional facilities at important ports like Mumbai, Kochi and Goa to facilitate movement of tourists.

The Shipping Ministry is still in the process of firming up policies, programmes and procedures for the development of the inland water transport and other projects under the proposed Sagarmala programme, which will then be placed before the Union Cabinet for in-principle approvals.

Investment & Business Opportunities (five year horizon)

- Operation and maintenance of ports - leasing out existing assets of ports
- Modernization of ports
- Construction of new ports and related infrastructure like container terminals, cargo berths warehousing, container freight station, etc.
- Leasing of equipment for port handling and leasing of floating crafts.
- Planning and execution of inland waterways projects
- Setting up of container terminals, jetties, LNG terminals etc.