INDIA - Lady Of Mystery

September 1990

200 MILLION INDIANS WATCH TELEVISION REGULARLY

15MILLION

INDIA'S POPULATION SHOOTS UP ANOTHER

India adds 15 million to its population every year 40,000 every day 1700 every hour 1 every 2 seconds

INDIA HAS THE WORLD'S LARGEST STOCK OF PRIVATELY HOARDED GOLD

— Isaac Asimov's Book of Facts

MORE INDIANS SPEAK ENGLISH THAN BRITONS

INDIA - AN ASSESSMENT OF BUSINESS OPPORTUNITIES

I. EXECUTIVE SUMMARY

One out of every six people on earth is an Indian. The world's largest democracy is gradually opening its economy and taking real steps to enter the world stage. Significant progress has been made by India evidenced by economic growth and export. The carefully controlled changes in economic and industrial policy have made the difference. India is a good investment for the long term. Careful entry, selection of the right partner, long term perspective, and great patience will reward the global player that is established in India.

There are strong reasons for optimism in the long term, but certain current events warrant constant study. The Middle East destabilization has raised oil prices to $30/barrel; if protracted, this will exacerbate an already serious balance of payments problem for India. GOI might be forced to slow, or even reverse, the promising policy steps of the past decade.

Population growth is the biggest social problem, pressuring every thread of the Indian fabric--growth 40,000 /day; 15,000,000 /year! The requirement to feed, house, care, educate, and employ one billion people by the year 2000 will be a Herculean task. GOI will have to initiate creative programs to handle basic human needs and ultimately bring population growth to manageable levels. The specifics of the eighth five-year plan will reveal how GOI intends to balance this priority with everything else.

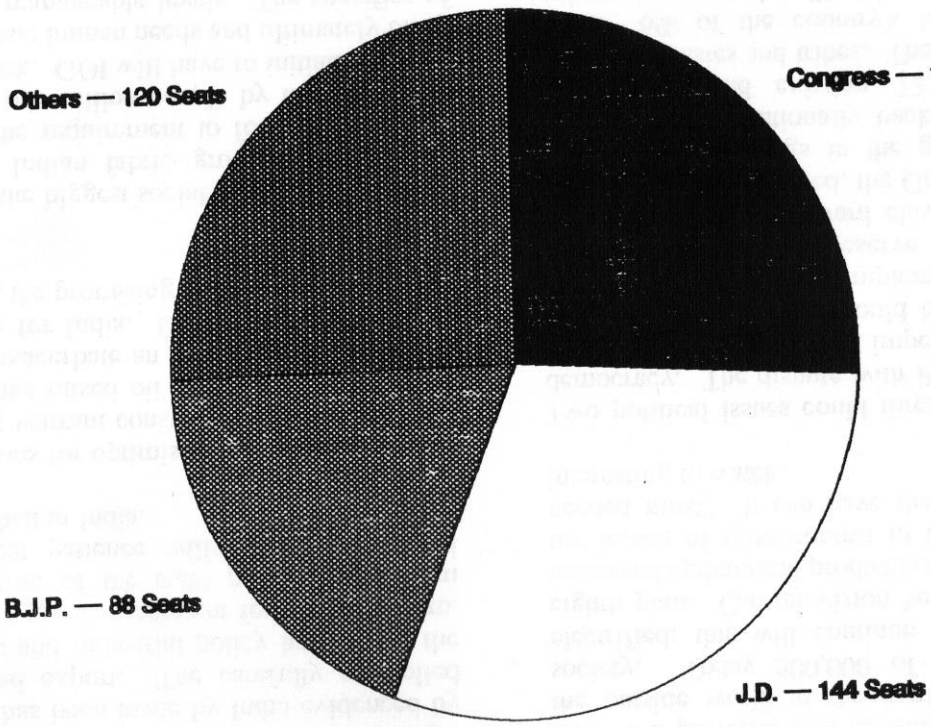
The communication revolution is underway in India; some 200,000,000 to 300,000,000 people see television daily. This is not just a middle class phenomenon; TV antennas are sprouting like mushrooms from the shantytown slums to the rural villages. This powerful medium will paint new expectations for the masses and fuel a vigorous consumer-oriented demand from the middle class. TV can energize the economy, and it just might create increased social tension due to the exposure of gaping disparity. It could also be a powerful tool in educating people and bringing the outside world to the nooks and crannies in Indian society. Today 500,000 of the 700,000 villages are electrified; this will continue to receive priority in the eighth plan. Can television help fashion the solutions to increased agricultural productivity? Can this medium bring the lesson of birth control to the rural areas where it is needed most? It can have dramatic impact and will be interesting to watch.

Two political issues could threaten the historically stable democracy. The dispute with Pakistan over Kashmir may never be resolved, but it is imperative that it be kept under control. Open warfare would be a serious setback on all fronts. Internally, implementation of a formal recommendation to reserve opportunities for the unscheduled and backward classes is political and social dynamite. Simply stated, the Government plans to reserve 27% of job openings in the government sector for the socially and educationally backward classes. This is in addition to and existing 22.5% reservation for the scheduled castes and tribes. The government represents an "Elite" 6% of the country's labor force. This recent enigmatic move by Singh's national front government could impose uncontrolled social tension in a society that already copes with political, religious, tribal, and economic polarizations.

India has abundant natural resources, but its great strength lies in its people. Mind-boggling in numbers and problematic in growth; the core is a proud, determined, energetic, bright nation, with a flair for trading and

CRT19TLK.XLC

Parliment: Lok Sebha (Lower House) -- 545 Seats



business that will bring India into the global economy in the next century.

Industrial development in India may bring world class position in segments like textiles or leather goods. However, the major role for india in a global context will come from agriculture and services. This will match local resource and demand with global requirements on a competitive basis.

This opportunity is clearly supported by a preliminary examination of three segments closely tied to agriculture and loosely related to value added service: food handling, edible oil processing, and water purification. Preliminary data would indicate that additional study in all three areas should be undertaken to perform a detailed financial analysis. India can be a global provider of selected agricultural products and people services.

II. INDIA OVERVIEW

1. BACKGROUND

India is commonly defined as the country of contradictions: Indeed it is the 11th economic world power, yet 37% of its population is below the poverty level. It has Nobel Prize winners and an illiteracy rate of over 37% (highest of the developing countries), even double that among women; it has 14 different official languages, intense socio-political and religious conflicts, but maintains a deeply-rooted nationalist tradition. It shares high standards of moral integrity, but corruption is widespread; India wants modernization and strongly opposes it. So many contradictions, so many problems: the common question is, "Will India ever take off?"

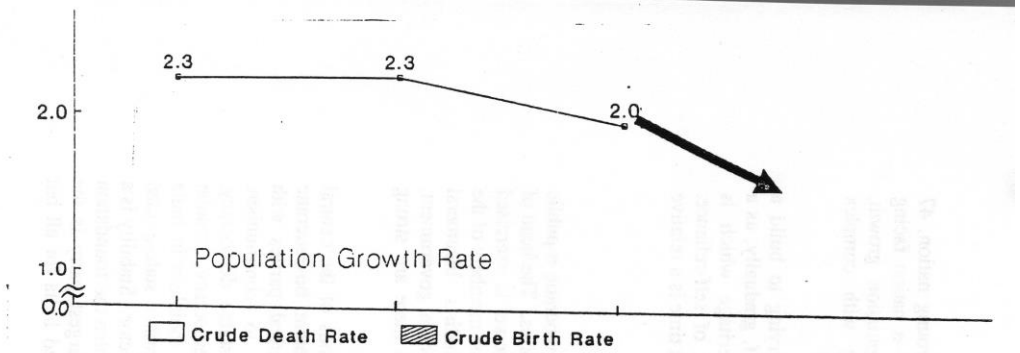
India, in spite of its long history, is a young nation, 47 years, living the dawn of its democracy--a nation facing enormous challenges: controlling population growth, defeating poverty, hunger, and coping with complex environmental and infrastructure problems.

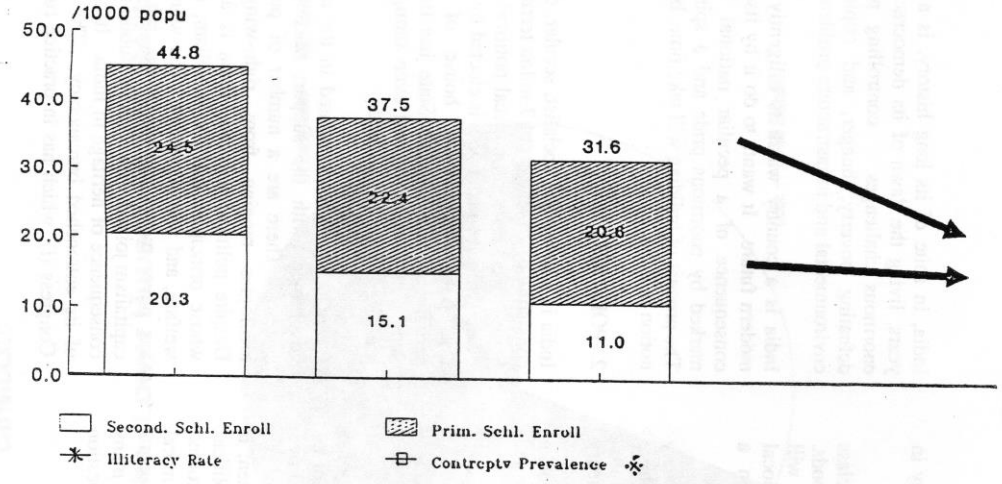
India is a country which is diligently trying to build a modern future. It wants to do it by itself, gradually, as a consequence of a peculiar national heritage which is marked by enormous pride and a spirit of self-reliance. The process of building will take time, but time is a relative notion in India.

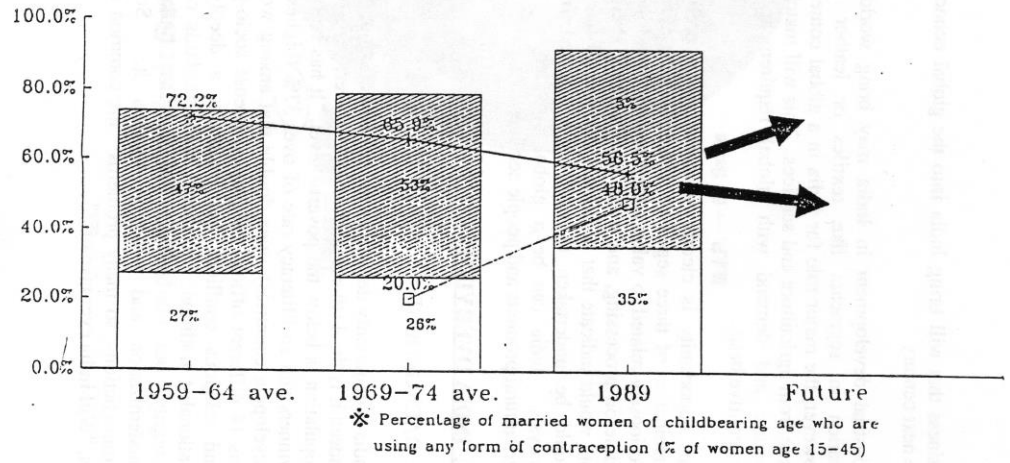
2. POLITICS

India is a sovereign, socialist, secular, democratic republic consisting of 25 states and 7 union territories. The head of State is the President, but real political power is exercised by the Prime Minister who is elected by the members of the Lok Sabha, the lower house of India's bicameral parliament. Each Indian State has its own government, State autonomy is limited even though there are strong pressures for decentralization.

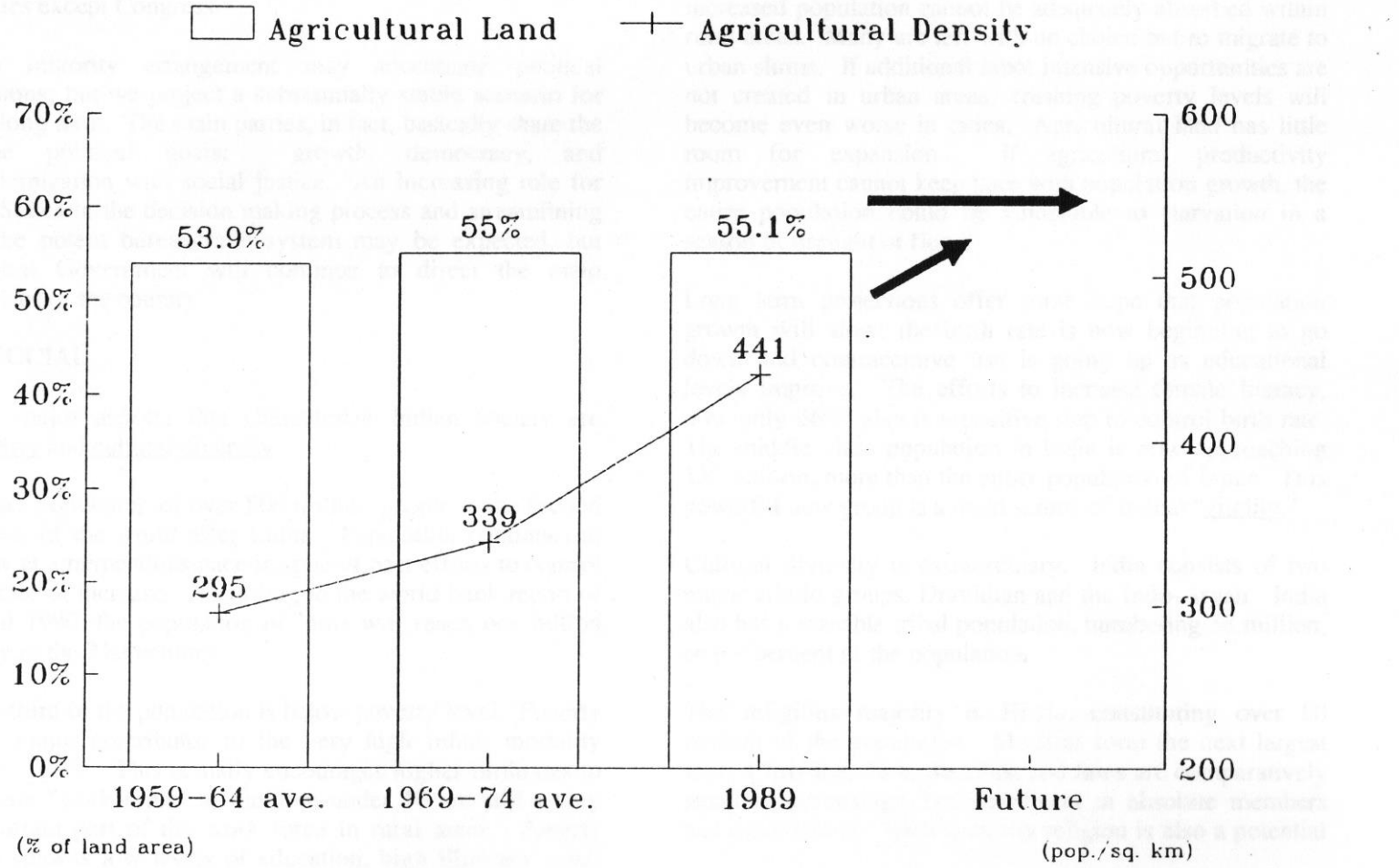
Power is tightly concentrated in the hands of the central government with the support of a potent bureaucratic system. There are a number of political parties with ideologies ranging from right-wing to communism. Despite political tensions, India is a stable democracy, whose principles call for socialism, democracy, popular welfare, and non-alignment. The word socialism in India has never meant anti-capitalism, but rather state-guided capitalism joined with a strong public sector. Stability is a consequence of heritage in India. It is also the foundation of its entrenched bureaucracy. The largest party is the Congress (I), which has in practice ruled India for all but







※ Percentage of married women of childbearing age who are using any form of contraception (% of women age 15–45)


Agricultural Land
Agricultural Density
70%
60%
50%
40%
30%
20%
10%
0%
600
500
400
300
200
53.9%
55%
55.1%
295
339
441
1959–64 ave.
1969–74 ave.
1989
Future
(% of land area)
(pop./sq. km)

four years since its independence in 1947. In the November 1989 elections, a minority government was formed, dethroning the Congress Party from central power, possibly opening the way for a two party system in India. The Prime Minister is V.P. Singh, of the Janata Dal Party, who can currently count on the outside support of all parties except Congress.

The minority arrangement may accentuate political tensions; but we project a substantially stable scenario for the long term. The main parties, in fact, basically share the same political goals: growth, democracy, and modernization with social justice. An increasing role for the States in the decision making process and streamlining of the potent bureaucratic system may be expected, but Central Government will continue to direct the main policies of the country.

3. SOCIAL

The major aspects that characterize Indian society are poverty and cultural diversity.

India's population of over 800 million people is the second largest of the world after China. Population continues to grow at a tremendous pace in spite of past efforts to control the rate of increase. According to the world bank report of April 1990, the population of India will reach one billion early in the 21st century.

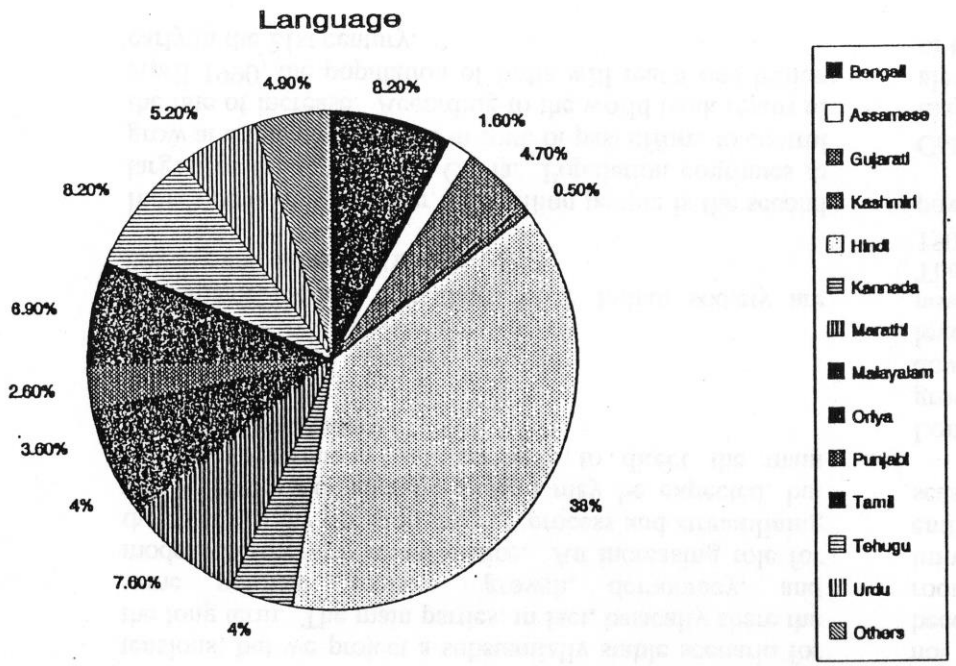
One third of the population is below poverty level. Poverty is a major contributor to the very high infant mortality level: 9.9%. This actually encourages higher birthrates to acquire "work force" as children under 10 are still a very important part of the work force in rural areas. Poverty also spawns low levels of education, high illiteracy rates, poor housing, and disease. It is a vicious cycle: poverty contributes to population increase, and population growth creates more poverty.

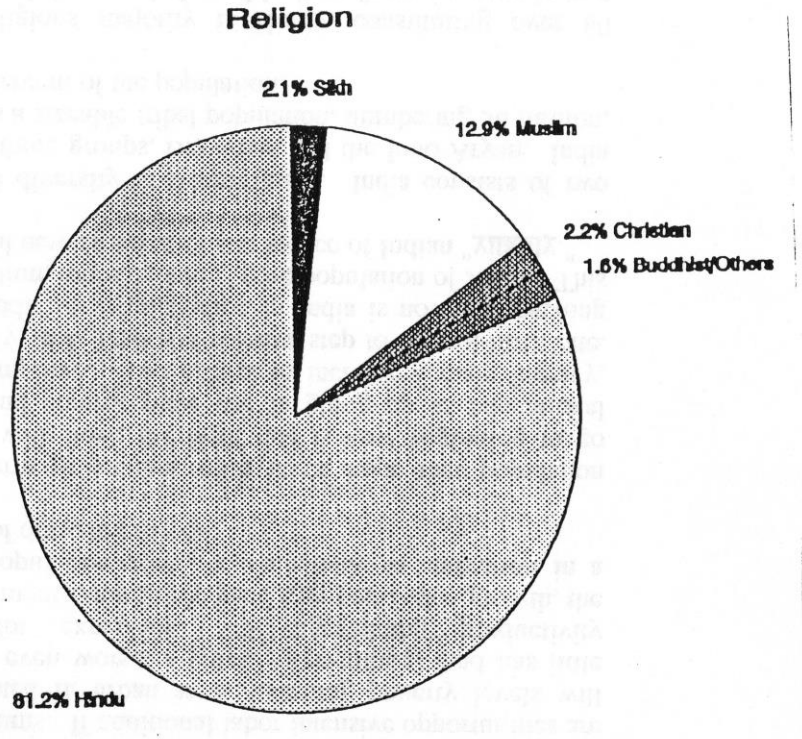
Population growth is most remarkable in the rural areas. Agricultural density is already very high; as a result, the increased population cannot be adequately absorbed within rural areas. Many are left with no choice but to migrate to urban slums. If additional labor intensive opportunities are not created in urban areas, crushing poverty levels will become even worse in cities. Agricultural land has little room for expansion. If agricultural productivity improvement cannot keep pace with population growth, the entire population could be vulnerable to starvation in a season of draught or flood.

Long term projections offer some hope that population growth will slow; the birth rate is now beginning to go down and contraceptive use is going up as educational levels improve. The efforts to increase female literacy, now only 26%, also is a positive step to control birth rate. The middle class population in India is now approaching 150 million, more than the entire population of Japan. This powerful new group is a main source of Indian "vitality."

Cultural diversity is extraordinary. India consists of two major ethnic groups, Dravidian and the Indo-Aryan. India also has a sizeable tribal population, numbering 38 million, or 6.9 percent of the population.

The religious majority is Hindu, constituting over 80 percent of the population. Muslims form the next largest sect. Christian, Sikh, Buddhist and Jains are comparatively small in percentage, but significant in absolute members and quite strong. Each minority religion is also a potential


Language
4.90%
8.20%
5.20%
1.60%
4.70%
0.50%
8.20%
6.90%
2.60%
3.60%
4%
38%
7.60%
4%
Bengali
Assamese
Gujarati
Kashmiri
Hindi
Kannada
Marathi
Malayalam
Oriya
Punjabi
Tamil
Telugu
Urdu
Others


Religion
2.1% Sikh
12.9% Muslim
2.2% Christian
1.6% Buddhist/Others
81.2% Hindu

majority in certain states, where it can exercise overwhelming political power.

Language in India is exceptionally diverse. India has 14 official native languages, not including English. Over 1500 regional languages, including dialects, are spoken. Some are concentrated in specific areas, others are dispersed over a wide area. The linguistic minorities resist absorption into majority languages.

The well-known Indian caste system is officially prohibited by the Indian constitution. However, in practice, the system is still very much a part of Indian society. 22% of government job openings are reserved for castes and tribes. In addition, it is proposed that an additional 27% be reserved for unscheduled classes and other backward classes.

The incredible diversity in race, tribe, religion, language and caste has at times created serious regional conflicts.

4. INTERNATIONAL

India has a strong non-alignment policy. Its foreign policy embodies three basic goals:

1) guarantee national security against invasion and subversion from within. India basically stays out of other country affairs.
2) self-reliance and enhanced security in defense and economic development.
3) an increasing role for India in international politics.

Relationship with countries in the region

After years of conflict, India and Pakistan firmly established a joint commission to promote economic and cultural cooperation, but distrust lingers and a "no-war" pact has not been signed. U.S.A. shipments of weapons to Pakistan, and suspicion that Pakistan is supporting extremists in Punjab make this the most sensitive regional relationship. Relationships with other neighbors are cordial with some sensitive exceptions including the internal Sri Lanka problem and ongoing people movements across the border with Bangladesh.

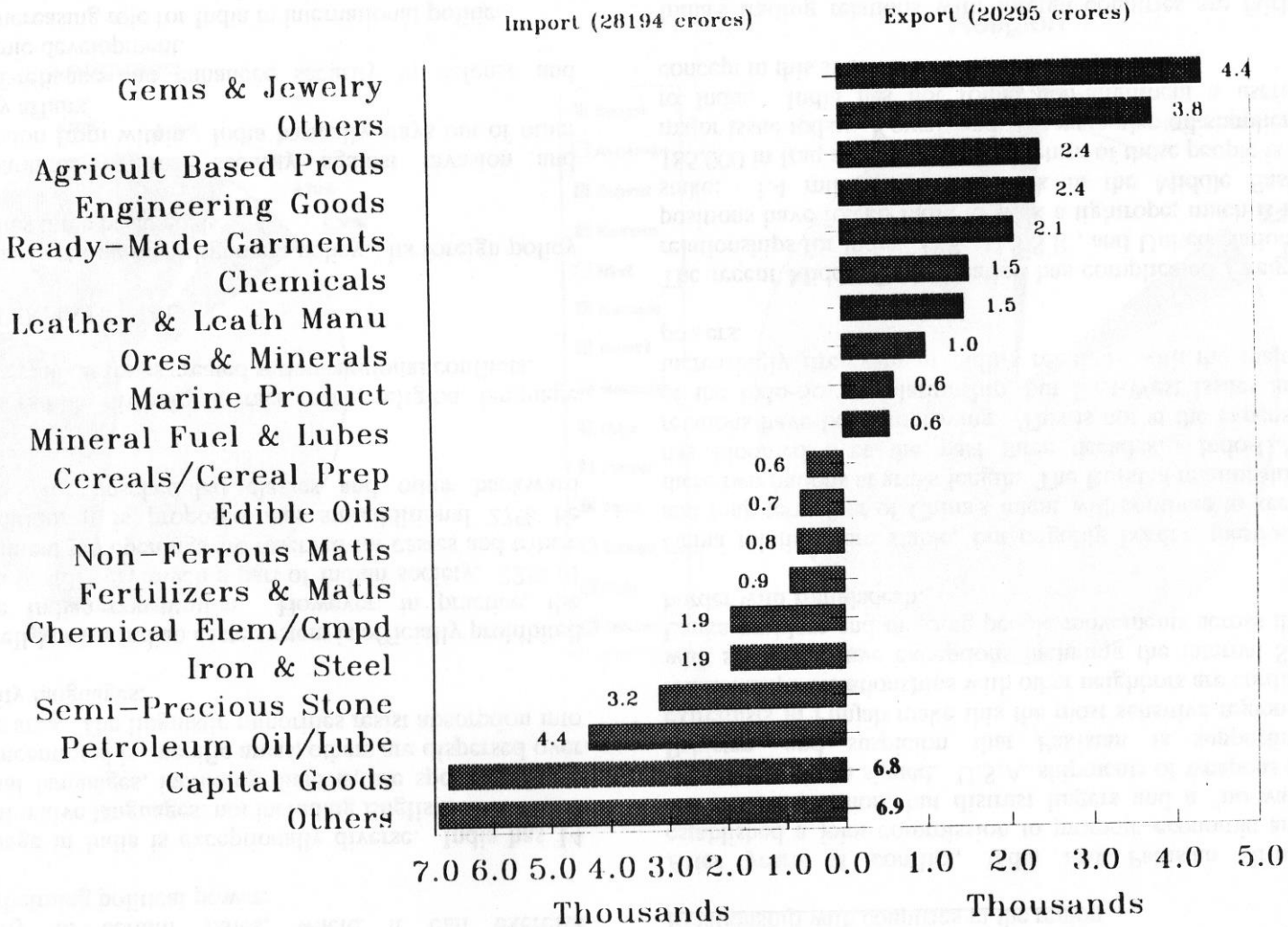
China relations are stable, but ongoing border questions and long term fear of China's intent will continue to keep these two nations at arm's length. The Russian relationship has bloomed over the past three decades. Indo-U.S. relations have been improving. This is not at the expense of the Indo-Soviet relationship, but East-West issues are increasingly irrelevant in India's relations with the major powers.

The recent Middle East situation has complicated foreign relationships for India. U.S., U.S.S.R., and United Nations positions have forced India to walk a tightrope; much is at stake: 1.4 million Indians work in the Middle East; 185,000 in Iraq and Kuwait. The return of these people is a major issue today. Kuwait and Iraq were also oil suppliers to India. India has not found non-alignment a useful concept in this situation.

India's trading relations with foreign countries are fairly limited. Indian exports of $17 billion (US) represents only 0.5% of world trade, and 6.3% of GDP. The main export products are textiles and garments, leather goods, gems and jewelry, agriculture and engineering products--primary

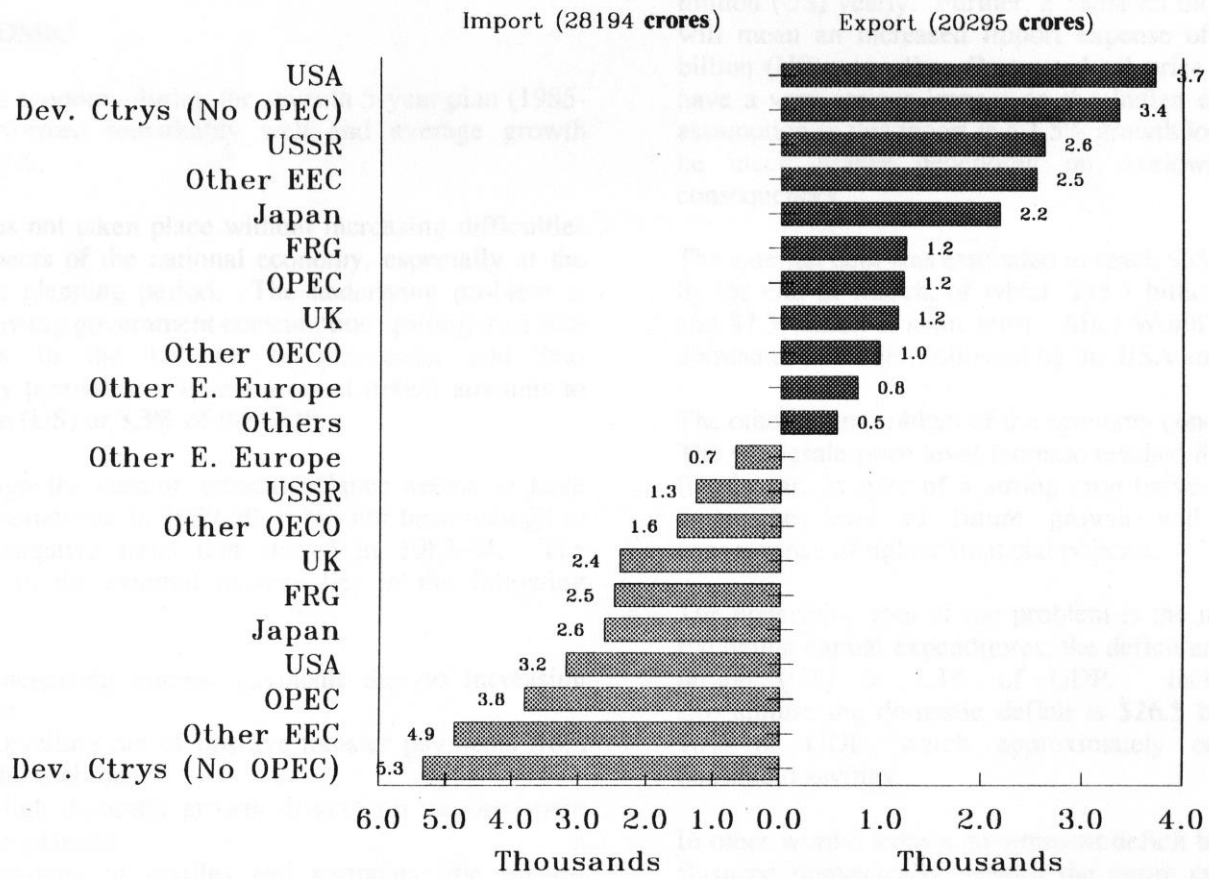
TRADE

Product (1988–1989)



TRADE

Destination (1988 – 89)



destinations are the U.S. and U.S.S.R. Imports of $25 billion (US) represent 9.4% of GDP. The main imports are capital goods followed by petroleum oil and lubricants while the main origins are U.S., Japan and Germany. The movement of most major economies toward free trade will put great pressure on the policy of self reliance in India.

5. ECONOMIC

The Indian economy during the seventh 5-year plan (1985-1990) performed remarkably well and average growth reached 5.7%.

Growth has not taken place without increasing difficulties in key aspects of the national economy, especially at the end of the planning period. The underlying problem is rapidly growing government consumption spilling over into imbalances in the balance of payments, and into inflationary pressures. Current account deficit amounts to $8.5 billion (US) or 3.3% of the GDP.

Even though the current account balance seems to have improved somewhat in 1989-90, it has not been enough to alter the negative trend that started in 1983-84. The sensitivity in the external balance lies in the following factors:

- Increasing interest payments due to increasing debt
- Levelling out of positive transfer payments from Indians abroad
- High domestic growth driving up imports more than planned
- Exports of textiles and garments, the biggest export items, face quotas from many importing countries

India imports about 300,000 barrels of oil per day and has about 1.4 million workers in the Middle East. The present conflict in Kuwait will almost certainly aggravate the already existing external balance problem. The remittances from Indians working in Iraq and Kuwait amount to $600 million (US) yearly. Further, a 3$/barrel oil price increase will mean an increased import expense of roughly $1.2 billion (US) annually. Protracted oil price increases will have a very serious impact on the Indian economy. The assumption in this report is a 1.5% growth loss, but it could be much higher depending on worldwide economic consequences.

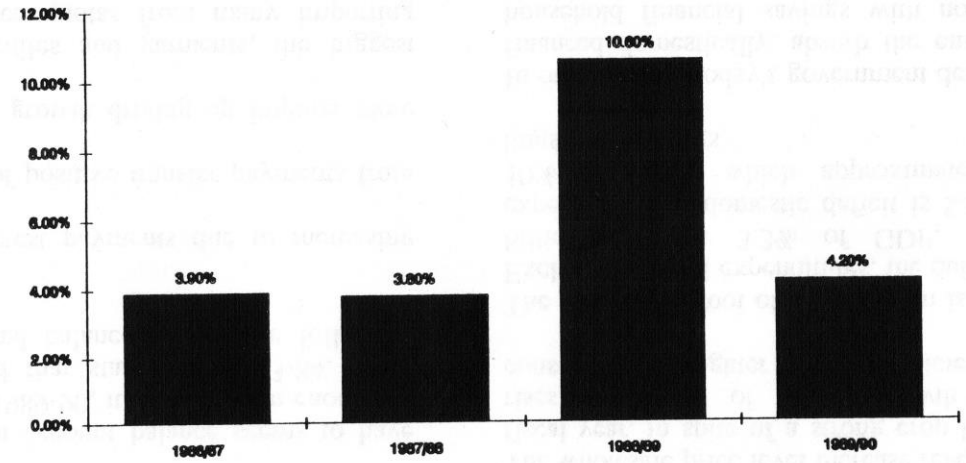
The external debt was estimated to reach $63.0 billion (US) by the end of March, of which $55.7 billion is long term and $7.3 billion is short term. After World Bank, Europe dominates as lender, followed by the USA and Japan.

The other main problem of the economy concerns inflation. The wholesale price level increase reached 8.5% in the last fiscal year, in spite of a strong crop harvest. If inflation rises, the level of future growth will suffer as a consequence of tighter financial policies.

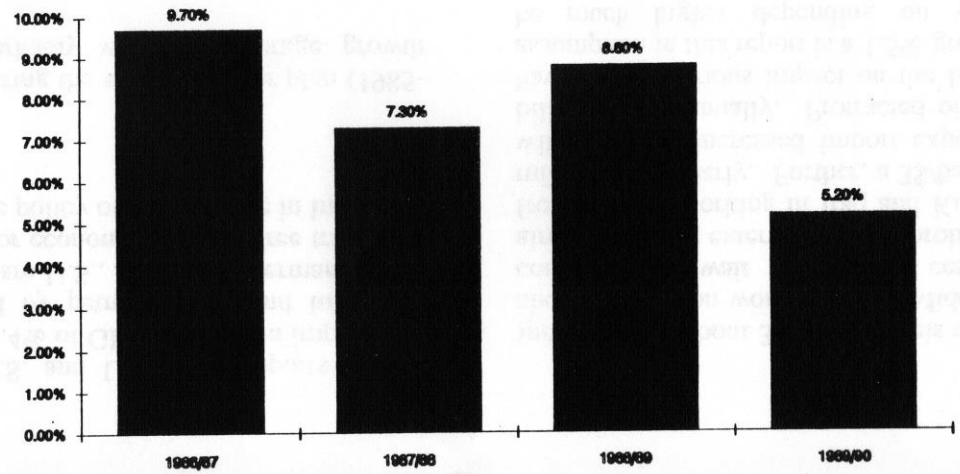
The underlying root of the problem is the internal deficit. Excluding capital expenditures, the deficit amounts to $8.5 billion (US) or 3.3% of GDP. Including capital expenditure the domestic deficit is $26.5 billion (US) or 10% of GDP, which approximately corresponds to household savings.

In other words, today's government deficit levels would, if financed domestically, absorb the entire current annual household financial savings with nothing left over for investments in other sectors of the economy. This is why

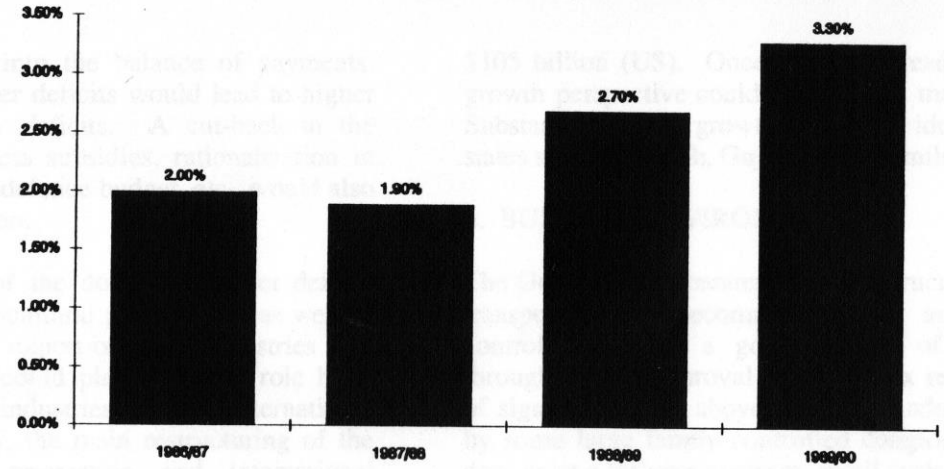
GDP



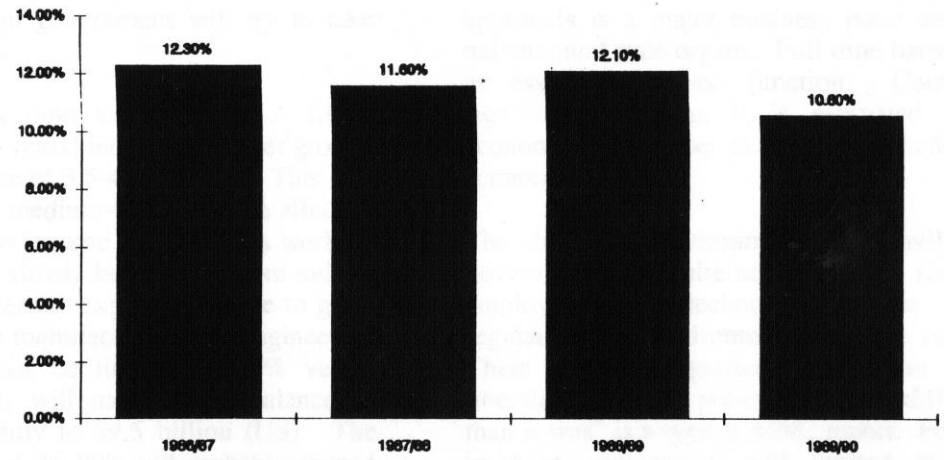
Industrial Production



Current Deficit – As Percent of GDP



Budget Deficit (IMF) – As Percent of GDP



deficits are spilling over into the balance of payments. This is a bad spiral. Higher deficits would lead to higher interests and again higher deficits. A cut-back in the domestic deficit through less subsidies, rationalization in public enterprises, reduced defence budget, etc., would also ease the pressure for inflation.

In addition to reduction of the domestic budget deficit, India must maintain its agricultural performance as well as encourage investments in export-oriented industries and services. Foreign capital could play a certain role here, leading the way to industries with international competitiveness. However, the main restructuring of the industry toward export orientation and international competitiveness must be made in domestic industries; acquisitions, mergers, rationalization of inefficient industries, lower tariffs for necessary components, etc. must take place in order to properly utilize the competitive advantage that India offers. We believe that the Indian government and parliament is aware of its economic challenge. Recent industrial policy announcements reflect this and suggest that Indian government will try to take steps to correct the problem.

Unfortunately India needs time to readjust. A likely medium-term scenario (1-3 years) indicates a lower growth rate than the last years, a rate of 3.5-4.5% yearly. This also takes into consideration the medium-term negative effect of increased oil prices and less income from Indians working abroad. Inflation will only slowly be reduced from today's 8.5% to 6-7% in medium term. Export will have to grow 14% yearly, primarily from manufacturing and engineering sectors, while imports must be limited to 10% yearly growth. The trade deficit will narrow, but balance of payment will increase slightly to $9.5 billion (US). The foreign debt in the middle of the 90's will probably exceed $105 billion (US). Once India has readjusted, a stronger growth perspective could be realized, maybe 5-6% yearly. Substantial higher growth could be identified in certain states such as Punjab, Gujarat, and Tamilnadu.

6. BUSINESS ENVIRONMENT

The Government operates key infrastructure industries like transportation, telecommunication, and power. It controls/influences a good portion of private industry through license approval and complex regulations (see list of significant laws above). Private industry is dominated by some large family controlled conglomerates; but there does exist a thriving medium, small scale industry group of enterpreneurs. Investment by foreigners is restricted by segmented lists of industries administered by the government, designed to protect local firms.

The bureaucracy is an onerous business burden in approval of initiatives. The bureaucratic process is deeply entrenched in Indian methods. Management of government approvals is a major business issue and applies to both national and state organs. Full time liaison staff in Delhi is an essential business function. Corruption is also a significant problem; it is estimated that the "second economy" could be as much as half of the reported economy.

The business environment is heavily influenced by government requirements for foreign exchange, employment, and technology transfer. In spite of tight regulation, the environment must be considered positive. There has been significant movement to deregulate and liberalize industrial policy. "It's still difficult but it's better than it was" is a typical MNC report. Foreign equity share in joint ventures is still limited to 40%, but more

FOREIGN INVESTOR QUICK REFERENCE FOR: INDIAN LAWS

Payment of Wages Act (1936) Minimum Wages Act (1948)	Regulate Wages.
Indian Arbitration Act (1940)	Applies to All Disputes. Parties Must Agree in Writing to Accept Decision.
Industrial Disputes Act (1947)	Industrial Relations: Curbs Unfair Labor Practice by Employer, Workers and Unions. Layoff, Exit Legislation.
Industries Development and Regulation Act (1951)	Regulates Industrial Investment.
Income Tax Act (1961)	Major Changes and Incentives
Monopolies and Restrictive Trade Policies Act (MRTP) (1969)	Covers Large Investments. Controls Asset Accumulation Levels.
Patent Act (1970)	Applies to Foreign and Domestic Firms. Not as Strong as Developed Countries. (Intellectual Property is a Problem
Foreign Exchange Regulation Act	Covers Foreign Equity and Licensing for Investment. Grants GOI Broad Powers.

Agreements for Joint Venture approved by appropriate ministries and Reserve Bank of India (RBI). RBI also approves Repatriation of Income and Capital, Mergers Acquisitions, and Expatriate Permits. Secretary for Industrial Approvals (SIA) single window for application.

FOREIGN COLLABORATIONS

Industry	1986	1987	1988	1989
Electric Equipment	175	183	183	99
Industrial Machinery	108	133	141	59
Chemicals (other than Fertilisers)	107	84		66
Ceramics	20	18	20	18
Industrial Instruments	20	47	20	18
Machine Toools	13	10	21	9
Metallurigical Industries	45	29	27	30
Other Industries	469	349		252
TOTAL	**957**	**853**	**435**	**605**

exceptions are appearing (high tech, hotels); license approval is less cumbersome; import restrictions and export obligations are easing and sometimes offset by new incentives. There is a sound system of law to protect agreements and it is possible to repatriate profits after tax. Labor, both skilled and unskilled, is low cost and abundant. The economy is growing and demand is accelerating in all segments. The initiatives of the Gandhi administration started a liberalization process in industrial policy in the eighties. The Singh administration announcement of May 1990 indicates that this direction will continue.

Establishing a business and hiring employees is a major commitment; lay off and exit are exceptionally difficult. The bureaucratic process is still a heavy burden and intellectual property protection is less secure than in developed economies. State governments differ widely in approach and this makes site selection critical; states impose tax on goods, control infrastructure, and administer labor laws; in addition, the state controls patronage. Protection of local industries has had a deleterious impact on process innovation and productivity in all sectors. Taxes continue to be high--the tax rate on foreign companies is 65%; in addition an 8% surcharge is levied on the tax. But "tax holidays" for certain investments are becoming more common.

Investments that bring technology and potential for export are embraced. Export profits are tax exempt. 10,000 foreign collaborators have been approved, but total dollar investment is low--$200 million/88-89, $300 million/89-90. USA, Germany, and United Kingdom are most active players.

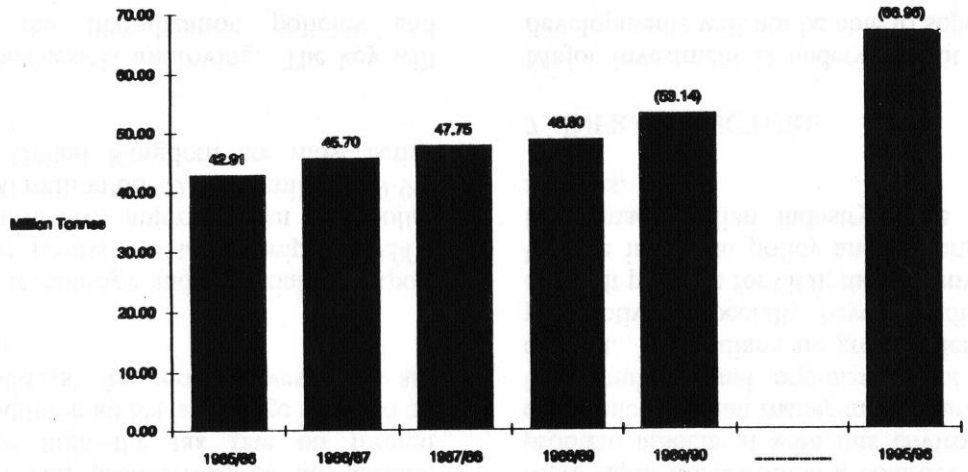
The environment for business is improving. The key will be continuation of the liberalization policies and implementation of the initiatives outlined in May 1990. "We can not ever go back, the liberalization process is irreversible"--is the typical assertion in government, banks, and business. The environment is better and agencies have been established to lubricate the investment process especially for technology and export potential. Capital is available, human resources are outstanding, and the demands of the economy will be staggering. Partnership is crucial and caution is still warranted; there are no short term opportunitistic arrangements--once in, it's for the long term.

The restriction of certain industries from foreign investment coupled with high import tariffs does protect local industry. However, it leads to artificially high pricing within the Indian market and does little to promote innovation in process and encourage real competition. In nationalized and protected segments of Indian industry, productivity is a real problem. Protection preserves jobs, but it literally keeps Indian industry from becoming competitive in market areas outside India. It also makes more rapid liberalization a controversial option. Another problem associated with this environment is the lack of experienced Indian managers who understand how to cope in a multinational organization or in a global market context. The Indians are great traders, but lack marketing perspectives especially beyond Indian markets. It is a difficult problem for GOI; the objective is to grow industry, but the industrial policy and import/export tax structures have made Indian industry more vulnerable in global markets.

7. INFRASTRUCTURE

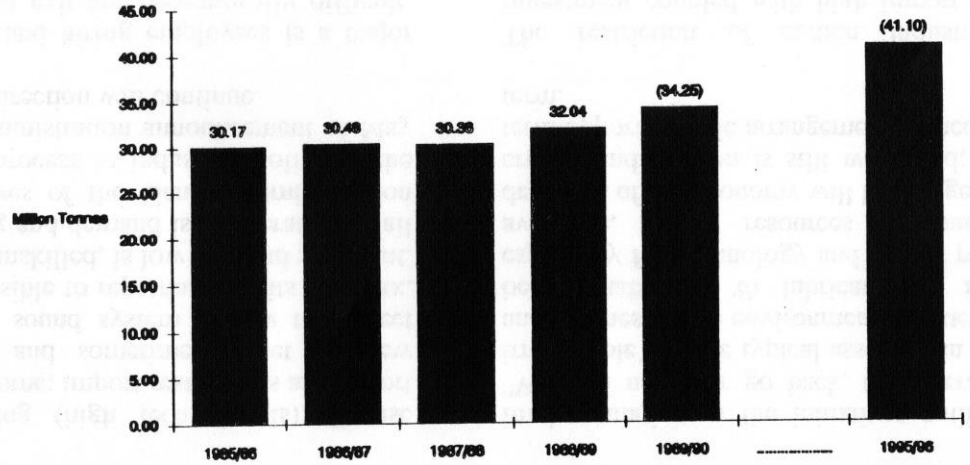
Major investment is underway, but current infrastructure developments will not be able to support current growth in

Production of Petroleum Products



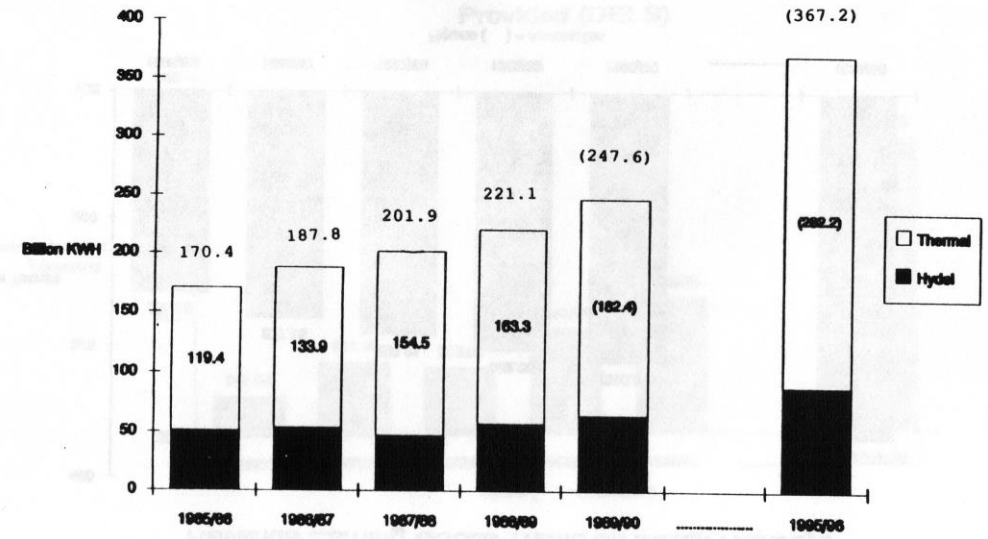
Figures ( ) - Assumption

Crude Oil Production



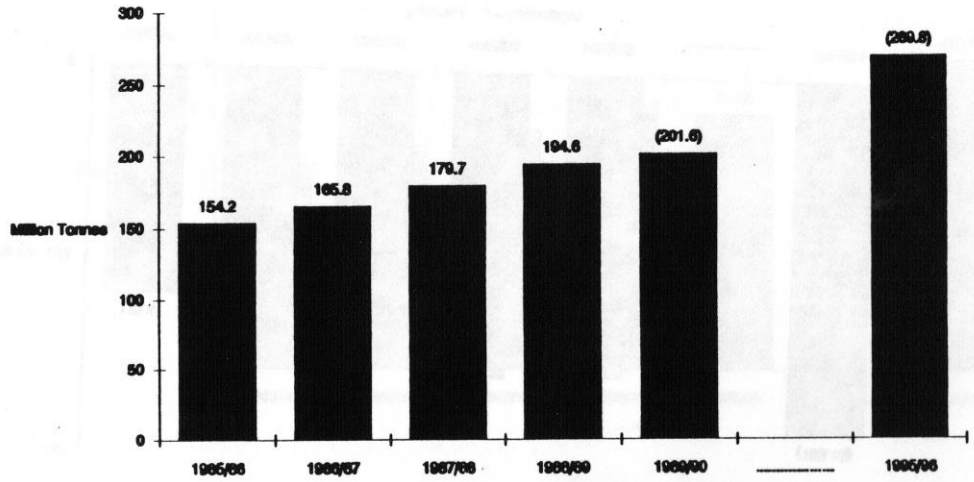
Figures ( ) - Assumption

Electricity Generated (Utilities Only)



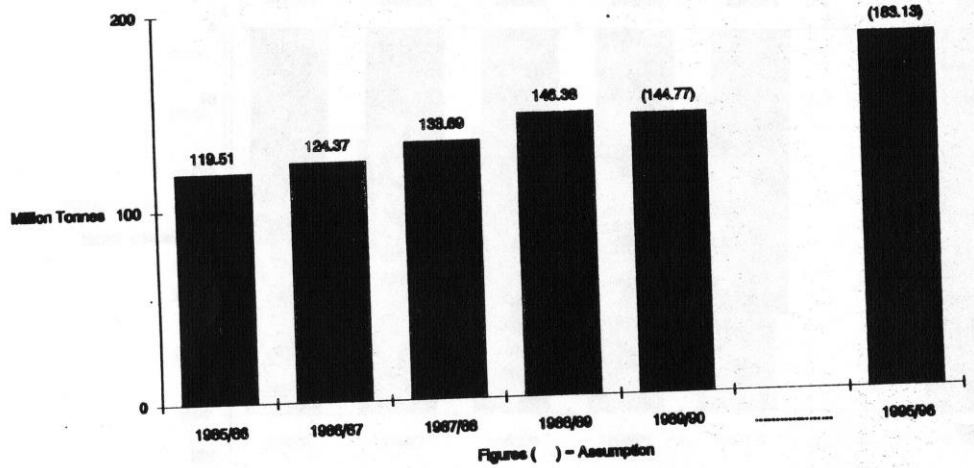
Figures ( ) - Assumption

Coal (Including Lignite) Production

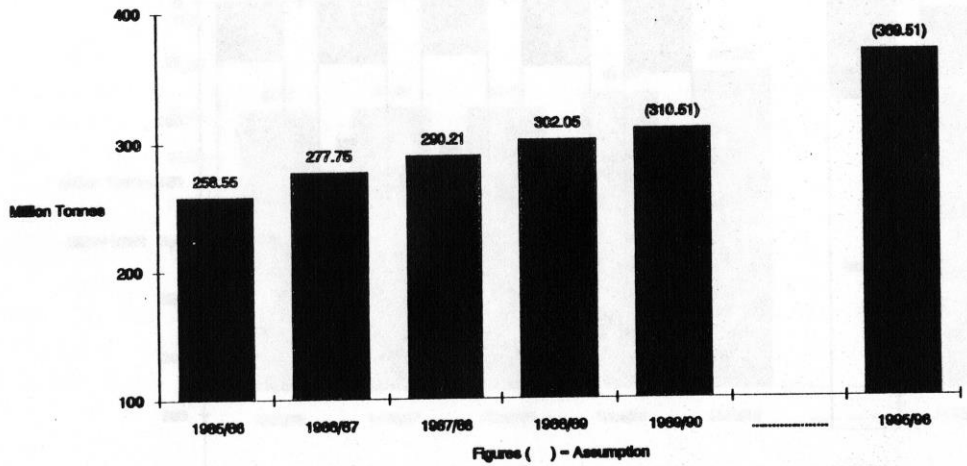


Figures ( ) - Assumption

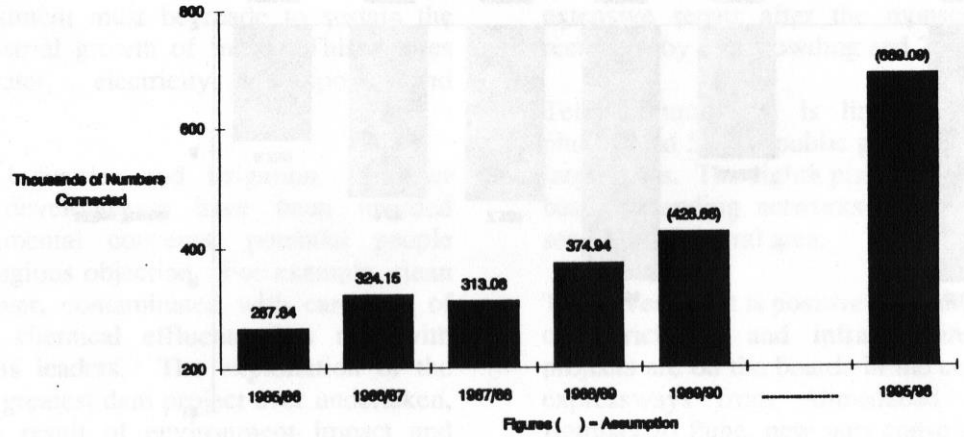
Cargo Handled at Major Ports



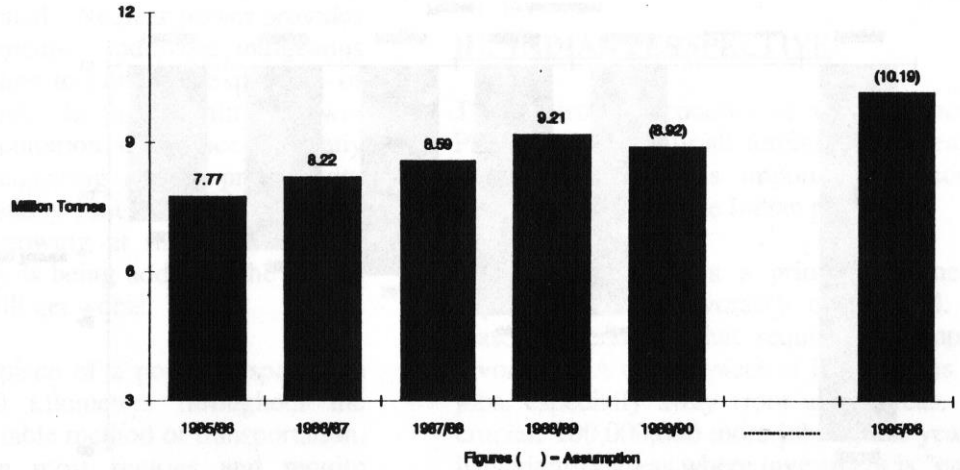
Revenue Earning Goods Traffic on Indian Railways



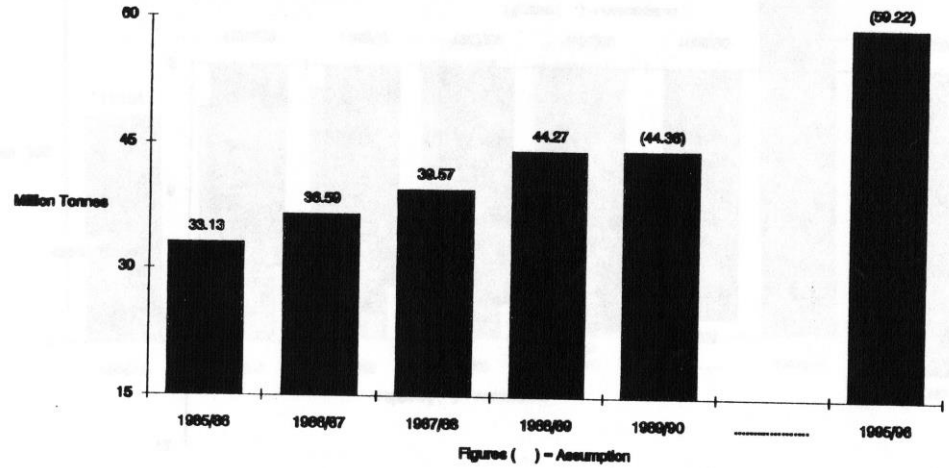
Telecommunications –– New Telephone Connections Provided (DELS)



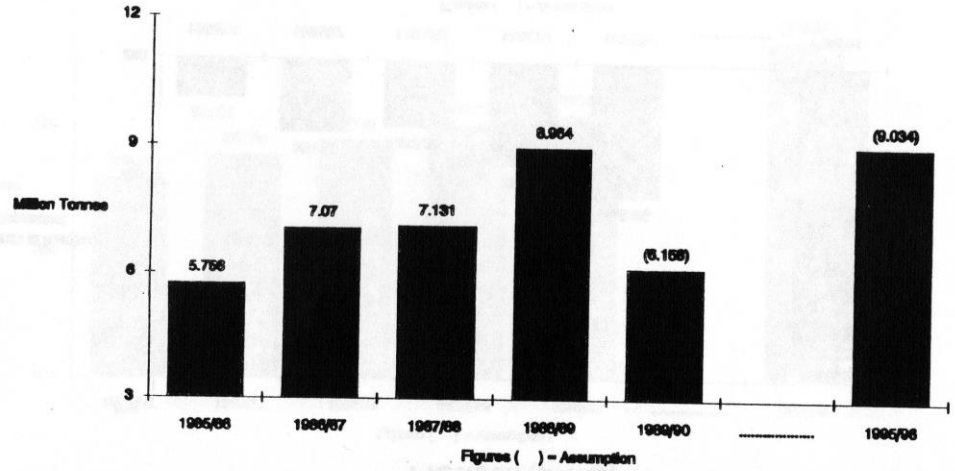
Saleable Steel (Main Plants)



Cement



Fertilizers (N & P)



India. Further investment must be made to sustain the agricultural and industrial growth of India. This applies equally to: water, electricity, transport, and communication.

Water is vital for industries and irrigation. Further improvements and developments have been retarded because of environmental concerns, potential people displacement, and religious objection. For example, clean up of the Ganges river, contaminated with carcasses of livestock and toxic chemical effluents, has met with resistance of religious leaders. The exploitation of the Narmada Valley, the greatest dam project ever undertaken, was suspended as a result of environment impact and displacement of people. This will curtail irrigation potential and compounds the power shortage problem the dam was meant to address.

Electricity generation is forced to depend on thermal power stations which need extensive transport support. 3-4 million tons of coal must be mined and transported for every 1000 megawatts generated. Nuclear power provides only 3% of current requirements. India has indigenous nuclear capacity and will have to continue expansion of this segment to meet demand. In the meantime, power shortage and failure is a common occurence in many regions; this represents a staggering loss in productivity and forces industry to add standby generators as a matter of course. Demand is now growing at the rate of 8,000 megawatts per year; capacity is being added at the rate of 5,000 megawatts a year--it will get worse.

Railroads are the strongest piece of a poor transportation network, extending 62,800 kilometers throughout the country. This is the most reliable method of transportation. Road systems are poor in most regions and require extensive repair after the monsoon season. Travel is restricted by overcrowding and 20 KPH is good progress.

Telecommunication is limited; only 5,000,000 private phones and 50,000 public phones are installed, primarily in large cities. The eighth plan calls for doubling the installed base, expanding networks in cities, and extending basic service to the rural area.

The government is positive in its emphasis in budget policy on agriculture and infrastructure. Some remarkable projects are on the boards in the coming 5 year plan: new expressways from Ahmedabad to Baroda and from Bombay to Pune, new port construction for coal transport at north Madras, are examples. These, coupled with a continuation of other initiatives, can have a positive impact on industrial and agricultural productivity.

The basic questions are balance of these priorities against upsets in the economy like oil price increases and potential compromise of the environment in meeting demand.

III. INDIAN PERSPECTIVE

The controlled economy of India is focused by Central Planning. Virtually all foreign investment is approved by GOI; therefore, it is important to understand the key objectives which drive Indian planning.

Foreign Exchange is a priority; businesses that create export are most favorably encouraged. For the same reason, operations that require few imports are viewed favorably. A central piece of Indian plans is the creation of jobs, especially away from urban areas. Employment is crucial; 100,000,000 more jobs by the year 2000. Industry lists identify areas where investment is "encouraged." This

Attitudes in India

	Government	Institutions	Business
Is Foreign Investment Welcome?	++	+	++
Is Multinational Image Positive?	0	0	+
Is Corporate Image Positive?	+	++	0/–
U.S.A. Investment	+	+	+
Europe Investment	++	++	++
Japan Investment	++	++	++
Will Liberalization Continue?	++	+	++

++ Extremely Positive
+ Positive
0 Neutral
– Negative
– – Extremely Negative

Source: Team Interviews
20 Businesses
8 Institutions
14 Governments

is designed to ensure investments support economic plans and protect selected local industry. Below this is an obsession with technology and the transfer of technology to Indian industry.

The gradual elimination of imports wherever possible, Phased Manufacturing Plans (PMP)--90% local sourcing within five years--will be enforced. Indian jobs and Indian sources managed by Indians is fundamental; it must be appreciated in an emerging industrial country still holding a vision of self-reliance.

The Indian situation requires massive investment in basic human requirements, infrastructure, and core industries. This has created a less than favorable attitude towards consumer enterprises unless proven potential for export exists. The new fiveyear plan will emphasize agriculture and rural development. Investments that support this thrust will be encouraged.

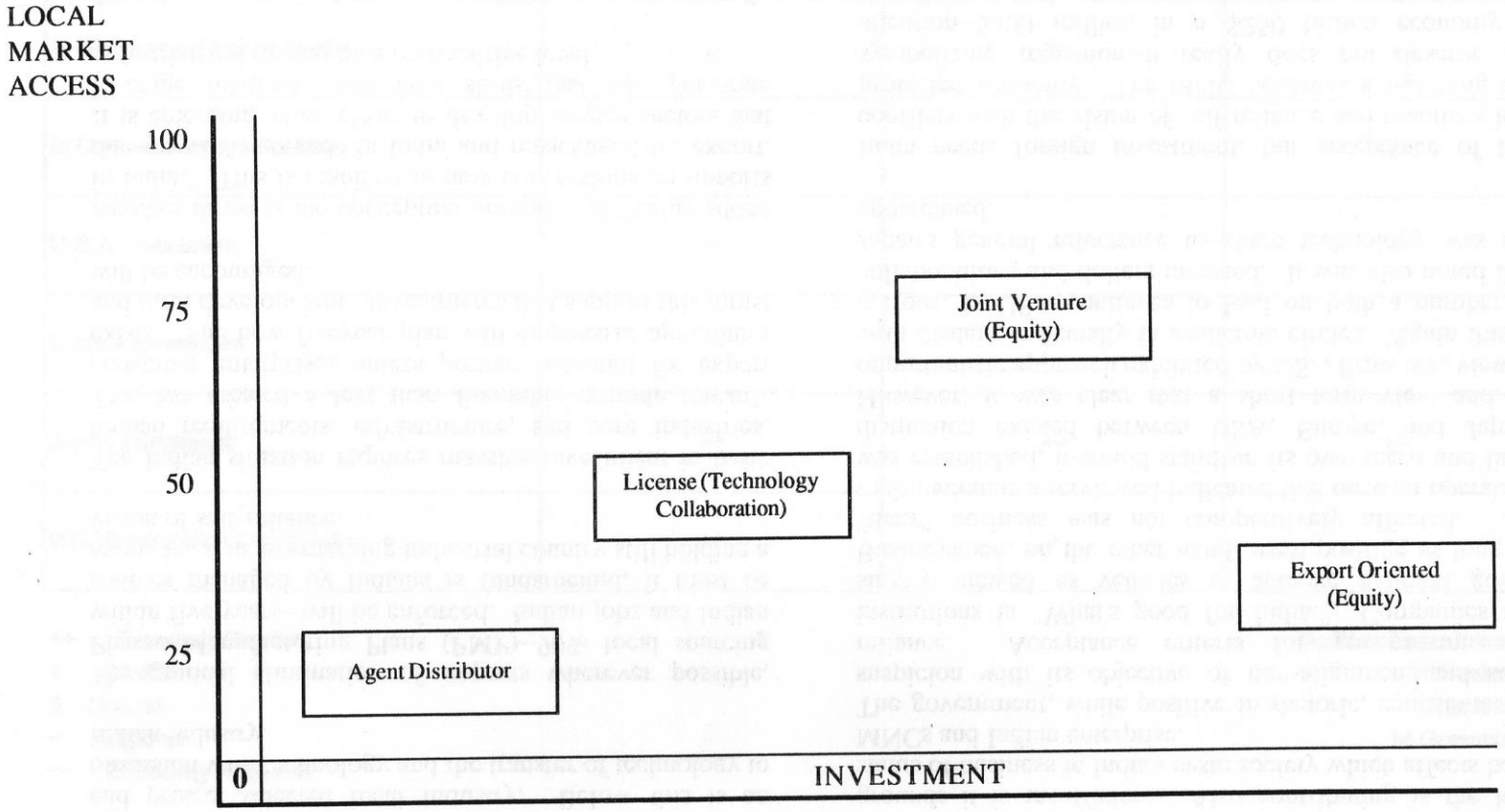
Another thrust is the conceptual umbrella of "Value added in India." This is manifest in new concessions on imports that may be "worked" in India and repackaged for export. It is emerging as an effort to develop service sectors that leverage relatively low cost skills that can penetrate industrialized market on a competitive level.

The data in Attitude Survey reflects an exceptionally positive picture, but there are curious contradictions. There is an undercurrent of suspicion surrounding MNC's in India dating back to the East India Trading Company. The "hangover" is protracted by a few examples of selfish performance and accidents involving MNCs. The Bhopal tragedy has also created distrust of major developments associated with multinationals and high tech. Even today this issue is news--the government has implied it will seek to overturn the court decision on payment to victims on the grounds it is insufficient. Also contributing is the low status of business in India's caste society which affects both MNCs and Indian enterprise.

The government, while positive in rhetoric, contributes to suspicion with its objective of non-alignment and self-reliance. Acceptance criteria for government and institutions is "What's good for India." Companies are simply viewed as vehicles to achieve national goals. Businessmen, on the other hand, were positive as long as "their" business was not competitively affected. All multinationals interviewed indicated that once an operation was established, it would stand on its own merit and little distinction existed between USA, Europe, and Japan. However, it was clear that a short term view and an opportunistic approach exhibited by USA firms was viewed with disdain, especially in academic circles. Again this is curious, as USA continues to lead on both a number of collaborations and dollars invested. It was also noted that Japan's general reluctance to share technology was not appreciated.

India needs foreign investment, but acceptance of this conflicts with the vision of self reliance and practices in a protected economy. The MNC becomes a lightning rod symbolizing transition--it really does not deserve the attention--$300 million in a $250 billion economy is literally pocket change.

Attitudes will continue to improve towards MNC participation especially if investment is congruent with national goals. More than anything, positive experience with MNCs will build an even greater acceptance and image.


LOCAL
MARKET
ACCESS
100
75
50
25
0
Joint Venture
(Equity)
License (Technology
Collaboration)
Export Oriented
(Equity)
Agent Distributor
INVESTMENT

Configurations for Entry

Export objectives, import restrictions, high tariffs, burdensome licensing and approval procedures heavily weight every option toward a partnership with an Indian firm. Government liaison is an essential element for business success in India, a task best suited to nationals.

The options shown reflect a graduated level of commitment and market access levels.

1. Import restrictions limit the chance of sustained success through distributor arrangements.

2. GOI encourages technology collaboration where the local partner manufactures and/or assembles and pays royalty to a foreign partner for "technology." This is not a long term entry strategy; royalties are capped and technology licences are limited to five years. However, this is a sound first step in evaluating the market and potential partners before moving to a Joint Venture.

3. Foreign equity in Joint Ventures is generally limited to 40%; exceptions are made for hotels (51%); high technology (74%) and export oriented (100%) projects. This requires careful selection of the partner and a long term commitment of the MNC. Once established, it is exceptionally difficult to withdraw. It is important to understand that as little as 26% ownership can achieve controlling interest under Indian law if it is the largest single equity holding. Higher than 40% equity can be negotiated, but it may expose the venture to Foreign Exchange Regulation Act (FERA) and future GOI constraints. Joint Ventures are also subject to export obligations up to 30% and phased manufacturing aimed at 90% local input within five years.

4. Export oriented projects, in special export processing zines, allow 100% foreign equity, but local market access is limited to 25% of export levels.

The progression from technical collaboration to Joint Venture is the logical entry for most new initiatives. Acquisition has not been considered as viable for initial entry, although affiliation with a non-resident Indian (NRI) partner could enhance entry and tax status. The entry option can be influenced dramatically by site selection. The differences in States, even locations within States, are significant. It should also be understood that Government may be a participant in ownership of joint ventures as well as Indian firms, and the public.

:India's Ranking in the World (1988)

	Accounting Unit	India 1988	World 1988	India's Rank in the World 1988
Area				
1 Geographical Area	Mn.Sq.Km	3.29	133.9	7
2 Arable Land	Mn.Sq.Km	1.65	13.7	3
3. Irrigated Area	Mn.Hectares	44.3	227.5	2
Population				
4 Population	Million	781	5000	2
Gross National Product				
5 Total G.N.P.	Bn.US$	241(t)	15865(t)	11
6 Per Capita G.N.P.	US$	300(t)	3173(t)	159(t)
Argicultural Production				
7 Rice	Mn.tonnes	102.0	484.9	2
8 Wheat	Mn.tonnes	44.6	508	4
9 Groundnuts	Mn.tonnes	7.3	22.9	1
10 Cotton	Mn.tonnes	1.50	17.8	4
11 Sugarcane & Sugarbeat	Mn.tonnes	165	1267	2
12 Tea	'000tn	690	2489	1
13 Tobacco leaves	'000tn	320	6569	5
14 Natural rubber	'000tn	227	4846	5
Animal Husbandry				
15 Cattle	Million	201	1253	1
16 Milk Production	Mn.tonnes	48.5	517.0	3
Mineral Reserves				
17 Crude Petroleum	Bn.tonnes	0.60(t)	121.2(t)	18(t)
18 Natural Gas	Trillion cubic mtrs	1.0	110.7	18(t)
19 Coal Bituminous	Bn.tonnes	14(t)	1026(t)	9(t)
20 Iron Ore (metal content)	Bn.tonnes	4.4(t)	65.3(t)	4(t)
21 Bauxite	Bn.tonnes	1.0(t)	21.8(t)	5(t)
Industrial Production				
22 Growth rate of industrial production	1975-87(%)	6.5	3.0	
23 Contribution of manufacturing sector to GDP	$Bn.	38.7(y)	3250(y)	13(y)
24 Cement	Mn.tonnes	37.0(t)	930(t)	5(t)
25 Newsprint	000 tonnes	258(t)	29200(t)	15(t)
26 Crude Steel	Mn.tonnes	12.0(t)	707(t)	15(t)
27 Sugar raw	Mn.tonnes	9.1	103.0	2
28 Nitrogenous fertilisers	Mn.tonnes	5.4	75.6(y)	4(y)
29 Machine Tools	$Mn.	334	31340(t)	18(t)
30 Sulphuric acid	Mn.tonnes	3.0(t)	152.6(t)	14(t)
31 Cotton woven frabric	Bn. mtrs.	10.0(t)	41.76(t)	2(t)
32 Passengers Cars	'000	155(t)	31940(t)	19(t)
33 Commercial Vehicles	'000	95(y)	12470(y)	14(y)
Energy Sources				
34 Electricity Generated	Bn.Kwh.	198(t)	10083(t)	10(t)
35 Crude Petroleum Production	Mn.tonnes	31.5	3025	18
36 Hard Coal Production	Mn.tonnes	215(t)	3415(t)	4(t)
Mineral Production				
37 Iron Ore	Mn.tonnes	55.1(t)	834(t)	5(t)
38 Bauxite	Mn.tonnes	2.5(t)	86.4(t)	9(t)
39 Manganese Ore	Mn.tonnes	1.3(t)	23.6(t)	7(t)
International Economic Relations				
40 Exports	Bn.$	13.1	2840	38
41 Internationa reserves incl. gold and SDRs	Bn.$	5.4	768.6	29
Others				
42 Shipbuilding Orders	000 GRT	352	24811	15

IV. THE ROLE OF INDIA

The enormous size, industrial growth, and gradual opening of the Indian economy will bring integration with the global economy in the next century. Two key assumptions are at the foundation of the projection for India's role: POLITICAL STABILITY WILL PREVAIL AND AGRICULTURAL PRODUCTIVITY WILL KEEP PACE WITH INTERNAL POPULATION GROWTH.

Driven by a vision of self reliance, India is now the world's largest country market with a protected high cost economy. Integration will depend largely on the pace of liberalization. The initiatives to liberalize industrial policy begun in the Gandhi administration of the late 80's must continue in the Singh administration. The May 1990 announcement on industrial policy is an indicator that the process will continue; speed in implementation, although slow, will be faster than in the past. The insular position taken by GOI in the past will not stand up in today's rapidly changing environment. The events in the Middle East underscore the vulnerability and interdependence of the Indian economy. Even the short market analysis on semi-conductors in this report verifies the need to move more open. The emergence of a growing middle class will also force more rapid change. Indeed, the entire population will pressure for continued openness as the communication medium of television reaches more Indians.

Over time, three conditions must be managed to achieve effective integration with world economies. The balance of payments is fragile, now India will have to accommodate long term oil prices in the $25 to $35 per barrel range. Internal budget control must be achieved and streamlining of the stifling bureaucratic process is essential to trim the high cost economy and prepare to open for real market competition. Time is a relative notion for India, but we are convinced it will happen. The potential for specific industrial participation on a world scale may develop. Progress in textiles and leather goods exemplify the industry progress made in India. It would appear that these can be world class competitive industries; India generates positive foreign exchange of $5.3 billion (US); for these industries. However, the world role for India is in two broad areas: agriculture and human resource. The real potential exists for India to become a world class agricultural producer in selected products. The emphasis of the 8th plan on agriculture is a step in this direction. The resource exists if the program can be focused.

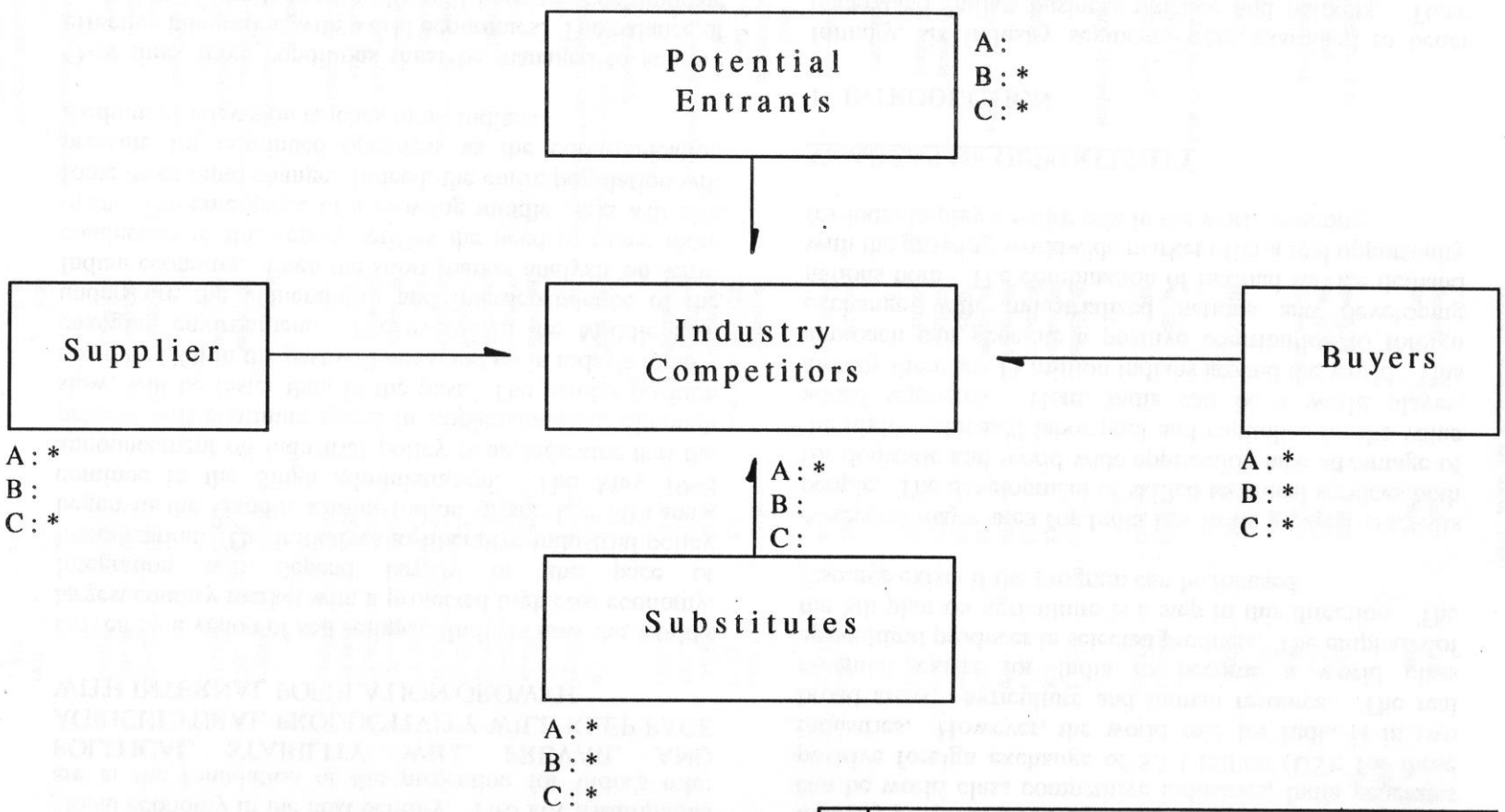
A second major area for India lies in its greatest asset--its people. The development of skilled technical services both for domestic and world wide application take advantage of the highly educated labor pool and capitalize on the value added segments. Here, India can be a world player; already there are 11 million Indians around the world. This approach can generate a positive contribution to foreign exchange with industrialized nations and developing nations both. The combination of internal service demand with the growing worldwide market offer a real opportunity for India to play a major role in the world economy.

V. AREAS OF OPPORTUNITY

1. INTRODUCTION

Initially, six industry segments were examined to better understand Indian business practice and markets. Three that were eliminated deserve note, for each gives some insight on the Indian opportunity.

Business Opportunity Assessment



A.	Food Handling	****
B.	Vegetable/Seeds Oil	***
	Soybean Product Oil	*****
C.	Water Purification Equipment	****

It was expected that TOYS would be an interesting, vital market as the middle class exercised its consumer oriented spending power. It is now clear this market is still to be developed in India. This should be an opportunity in the future, but we received little encouragement from the business community. No enthusiasm for this investment was uncovered in any government department even when it was positioned with electronics and export potential. Finally, it was determined that toys are reserved for small scale industry.

We also expected to find a warm reception for SOLAR ENERGY. The critical shortage of energy and favorable sun factors have not been brought together with a solar solution in India. There is knowledge of the application, but it is not widely used based on cost; in addition, there is a limited heating requirement where solar has been most successfully applied. We did find consistent interest in government and business for R & D collaboration on solar.

SEMI-CONDUCTORS were also eliminated after a detailed analysis of the competitive structure of this segment. At the present time, demand within India will not support the investment required to enter this business locally. The analysis also confirmed our assumptions concerning the impact of import duties on Indian industry. The price differential, verified by the Department of Electronics study, indicated that locally produced integrated circuits were higher in price by as much as 300%. In addition, quality was not acceptable on a worldwide basis. This was a striking example of the problem caused by the morass of import duties on components and the legacy of protected industry at home.

It is interesting that we did find a number of opportunities related to semiconductors; namely, board "stuffing" and systems integration. Here, value added is applied to a combination of indigenous and imported components and competitively repackaged or applied.

The remaining three segments: food handling, oil seed processing, and water purification, are outlined below. Each of these opportunities scored a potential three or four stars on the business opportunity assessment chart. These opportunities in India show promise that should be studied in greater detail in the future.

2. THE FOOD HANDLING INDUSTRY

Introduction

Agriculture is a key survival and progress factor for India. More than 60% of the population is employed in agriculture and it generates one third of GNP. Blessed with 12% of the world's land mass and abundant low cost labor, India could build a competitive advantage in specific segments of this sector. Increased exploitation of the food handling industry will allow national priorities to be addressed: rural development, food waste, and balance of trade.

A greater variety of products and increased efficiency in the total distribution chain can be achieved through improved processing, packaging and handling, including storage and preservation. Indian estimates are that 25-30% of all food is destroyed because of poor packaging and handling. India produces about 300 million tons of food products yearly, representing an estimated market, including added value, of $130 billion (US). The dominating product groups are product groups are:

Indian Export of Agricultural Products 1989/90

PRODUCT GROUP	VALUE (Millions of Rupees)
Marine Products	6.3
Tea	5.9
Oil Cakes	3.7
Rice	3.3
Cashew Kernels	2.8
Coffee	2.8
Spices	2.5
Fruits and Vegetables	1.6
Tobacco	1.3
Meat and Meat Products	0.9
Sugar	0.1
TOTAL	31.2 Million Rupees
PROCESSED FOOD	
Marine Products	6.3
Fresh Fruits and Vegetables	0.5
Preserved Fruit and Vegetables	1.2
Meat and Meat Products	1.2
Other Products	1.2
TOTAL	10.4 Million Rupees

1. Rice paddy 18%
2. Fruit/vegetable 18%
3. Milk 14%
4. Wheat 13%
5. Oilseed/Coconut 10%
6. Sugarcane 7%
7. Pulses 7%
8. Meat 3%
9. Spices 2%
10. Fish 2%

Only 1.5% of this output is converted into processed foods. As an example, 98% of the milk distribution has a product durability of 24 hours or less, resulting in substantial waste.

The food processing areas developed at this time are fish products, milk products, meat, and meat products plus fruit, vegetables, soft drinks, and juices. Ready-to-eat extended food is a small but fast increasing business. A step change development in the food industry can be made only if seed technology, food processing technology, packaging and distribution (including storage and preservation) are developed simultaneously.

Business Idea:
Establish decentralized food handling centres. These centres will assist farmers in seed development, purchase food from them, and perform local "production". At the end of the production process, the product is distributed to regional stocking points suitable for preservation, then distributed to retail, or exported. Export opportunities could be won with higher quality of the seeds.

The production at the food handling centres will vary in integration and technology level.

Products for Packaging (manual and semi-automated)	Products for Processing/Packaging (semiautomated and automated)
- Seed development assistance. - Sorting of pro ducts into quality classes. - Packaging for retail by utilizing filling machines, labelling machines, etc. - Collecting retail packages into suitable transport packages. - Distribution to stores suitable for preservation.	- Seed development assistance. - Processing of pro ducts into consumer stage utilizing different techniques for different products. - Packaging for retail at the end of the processing. - Collecting retail packages into suitable transport packages. - Distribution to stores suitable for preservation.

An example of products in the two categories are potatoes, oranges and onions in the packaging category--milk, edible oils and tea in the packaging and processing category. The improvement of the food handling industry in the packaging category lies in the sorting procedure, which enables the market to utilize all quality levels for a specific purpose as well as reduced damage in packing and handling. The productivity improvement of the food handling industry in the packaging and processing category is in the processing into several new consumer oriented products with proper packaging applied. This could open up for new distribution and retail systems in India plus provide an unlimited possibility for export activities of processed food, especially in the fruit and vegetable area.

Food Handling Equipment

	Present market 1989-90	Present growth rate estimated average 1989-94
Food process Equipment	$80 M (US) (est)	6%
whereof imports	25% (est)	
Food packaging equipment	$25 M (US)	15%
whereof imports	66%	

India has today more than 1000 producers of food processing and food packaging equipment. More than 90% of these are small scale unorganized units. The GOI has included many processing and packaging machines in the list of license free imports. A few examples:

Processing	Packaging
- Tea bag making-plant	Asceptic packaging equipment
- Fish skinning and boning equipment	- Gas flushing machines for packaging
- Smoking kilns	- Gas and vacuum packaging
- Snack food extruders	- Tea carton packing machinery
- Meat separator/ deboning machine	- Form fill and seal machines

Added Value

The value added dimension in the food handling industry increases the opportunities. The total Indian market is estimated to $130 billion (US) and the total current export of agricultural product is $2 billion (US). A specification of this export is attached. GOI opened the food handling area for foreign participation in 1986. The challenges for foreign investment are to influence local market preferences for improved food quality and lower waste handling systems; develop global advantage and build exports. If we include fish products, one third of agriculture exports today is made up of processed foods. The growth of processed foods was negative in 1988/89 due to quality, but increased 20% 1989/90.

Entry Strategy

We recommend foreign companies with expertise in the food handling industry field enter India with a joint venture entry strategy. The foreign company should possess an attractive worldwide trademark, have a well developed international distribution network, and be able to bring technical know-how in processing, packaging, distribution, and storage. The foreign investor could achieve 40% initial shareholding, but should be careful in selection of local partner(s). In the food handling business, it is very important to get full support of farmer cooperatives, local and central governments. Inviting cooperatives and/or local government as partners is one way to achieve credibility and insure support. Selection criteria for choice of suitable products and regions is listed below; we also recommend that the following be used to form the basis for a more detailed feasibility study:

PRODUCT SELECTION
- Achievable quality of product
- Long term competitiveness globally
- Possibility to bypass import restrictions in important markets, including health and sanitary standards
- Appeal to local market

REGIONAL CONSIDERATION
- Climate/water/soil conditions
- Infrastructure such as road transport and electrical power
- Availability of labor
- Attitude from governments
- Attitude from cooperatives
- Tax
- Local competition
- Suitable distribution channels in India
- Profitiability short and long term

Depending upon the scope of the project and the product selection, the invested amount will vary considerably. Generally, food handling is not very capital intensive. An investment of $10-20 million (US) would give a foreign investor a foothold in India. Advanced equipment related to the investment would have to be imported; simpler equipment could be acquired in India. The PEPSI establishment in India has successfully proven the validity of the above entry strategy. In the case of PEPSI, the importance of local management has also proven to be critical.

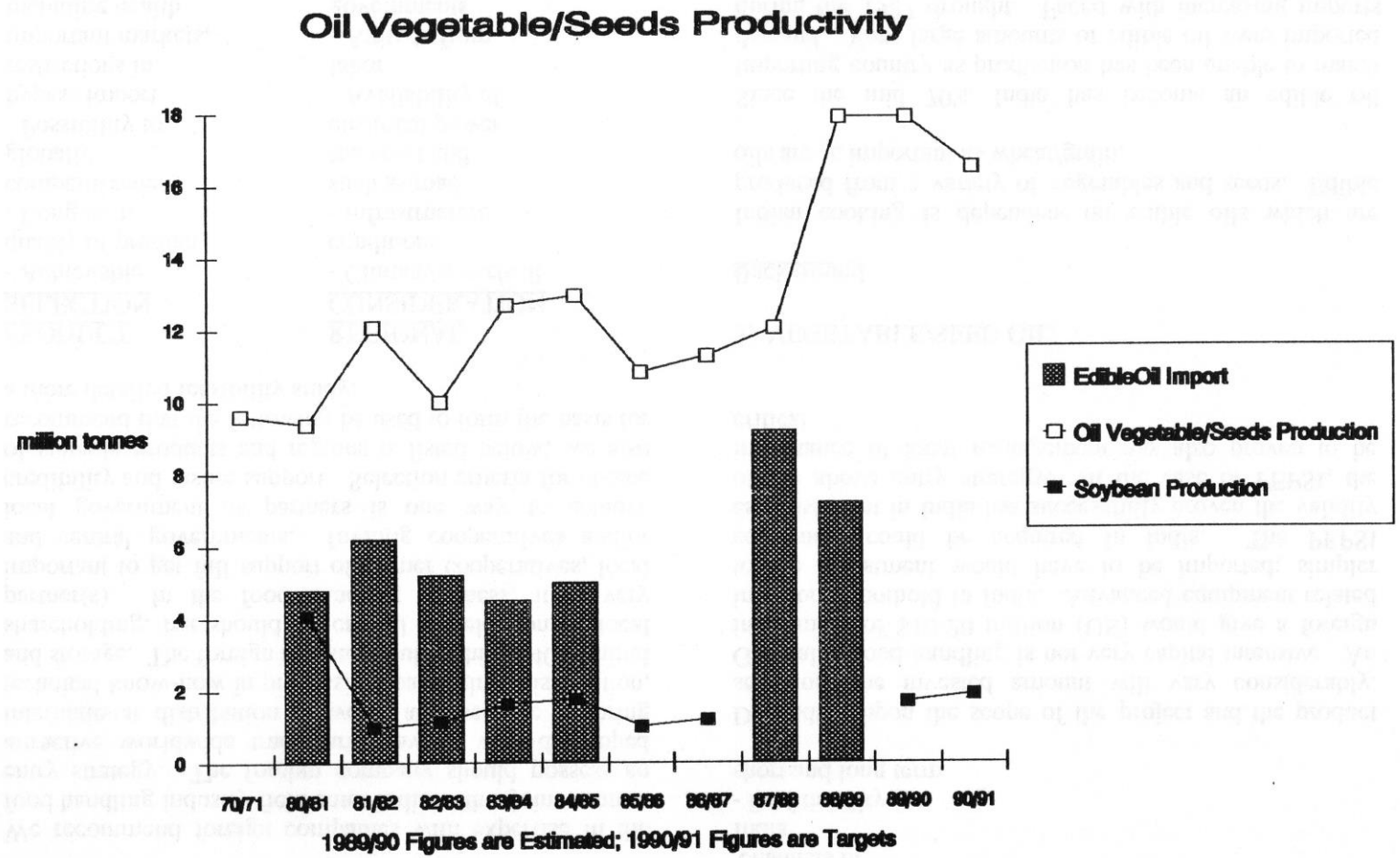
3. VEGETABLE/SEED OIL

Background

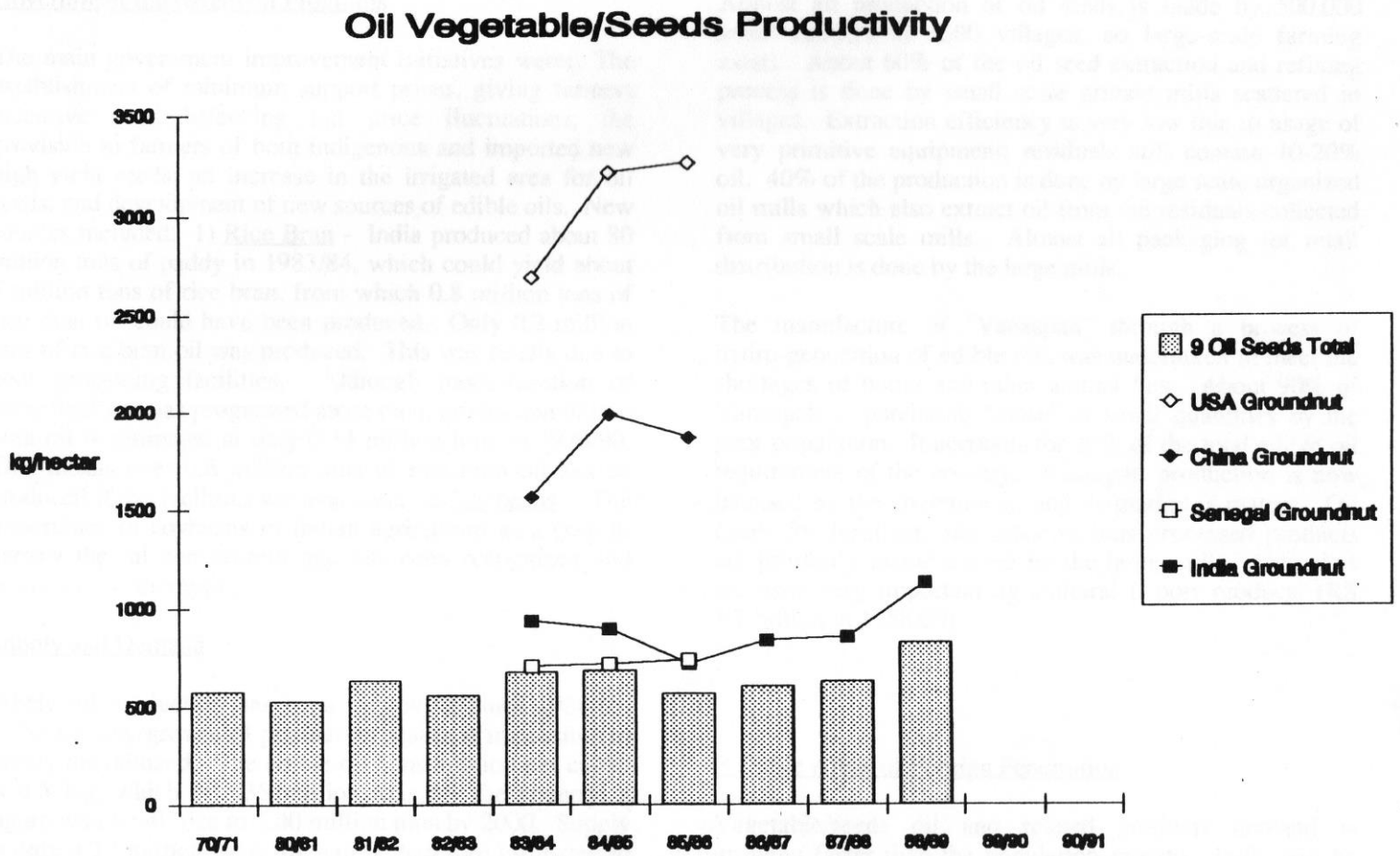
Indian cooking is dependent on edible oils which are produced from a variety of vegetables and seeds. Edible oils are as important as wheat/grain.

Since the mid 70's, India has become an edible oil importing country as production has been unable to match demand. Very large amounts of edible oil were imported during the 1987 drought. Faced with increasing imports and related foreign exchange pressures, the government launched a special oil seed program in its 6th Five Year Plan (1979/80 - 1984/85). The most important problems to

OILSEED.XLC


Oil Vegetable/Seeds Productivity
million tonnes
18
16
14
12
10
8
6
4
2
0
70/71
80/81
81/82
82/83
83/84
84/85
85/86
86/87
87/88
88/89
89/90
90/91
EdibleOil Import
Oil Vegetable/Seeds Production
Soybean Production
1989/90 Figures are Estimated; 1990/91 Figures are Targets

PRODUCT.XLC


Oil Vegetable/Seeds Productivity
kg/hectar
3500
3000
2500
2000
1500
1000
500
0
70/71
80/81
81/82
82/83
83/84
84/85
85/86
86/87
87/88
88/89
89/90
90/91
9 Oil Seeds Total
USA Groundnut
China Groundnut
Senegal Groundnut
India Groundnut

tackle were low productivity and the linkage to caprices of monsoon rains.

Government Improvement Programs

The main government improvement initiatives were: The establishment of minimum support prices, giving farmers incentives and balancing out price fluctuations; the provision to farmers of both indigenous and imported new high yield seeds; an increase in the irrigated area for oil seeds; and development of new sources of edible oils. New sources included: 1) Rice Bran - India produced about 80 million tons of paddy in 1983/84, which could yield about 5 million tons of rice bran, from which 0.8 million tons of rice bran oil could have been produced. Only 0.2 million tons of rice bran oil was produced. This was totally due to poor processing facilities. Although modernization of these facilities has progressed since then, production of rice bran oil is estimated at only 0.34 million tons in 1989/90. This means over 0.6 million tons of rice bran oil can be produced if the facilities are available. 2) Soybeans - The importance of soybeans in Indian agriculture as a crop to narrow the oil and protein gap has been recognized and production is increasing.

Supply and Demand

Edible oil production has been improving since 1988/89. Unfortunately growth of population makes it impossible to satisfy the demand. The edible oil consumption per capita is 6.5 Kg, which is 5.35 million tons for the country, a figure which will rise to 7.00 million tons by 2000. Supply is only 4.17 million tons; the gap is therefore estimated to be 1.18 million tons. Planned import is limited to 0.6 million tons which means that 0.58 million tons is uncovered.

Present Production Structure

Almost all production of oil seeds is made by 500,000 small farmers in 3500 villages; no large-scale farming exists. About 60% of the oil seed extraction and refining process is done by small scale private mills scattered in villages. Extraction efficiency is very low due to usage of very primitive equipment; residuals still contain 10-20% oil. 40% of the production is done by large scale organized oil mills which also extract oil from the residuals collected from small scale mills. Almost all packaging for retail distribution is done by the large mills.

The manufacture of "Vanaspati" through a process of hydro-generation of edible oils was undertaken to meet the shortages of butter and other animal fats. About 90% of Vanaspati is purchased "loose" in small quantities by the poor population. It accounts for 20% of the total edible oil requirement of the country. Vanaspati production is now licensed by the government, and its market is mature. Oil cakes for fertilizer, and other various processed products are primarily manufactured by the large mills. Oil cakes are now very important agricultural export products (RS 3.7 billion in 1988/89).

Possible Areas of Foreign Penetration

Vegetable/seeds oil and related products demand is growing faster than the population growth. India will be self-reliant in production of oil seeds in the near future. India could also have a significant export capability if productivity can be improved.

The time is now right for foreign investment. The present shortage situation and the need for new technology in certain areas provide strong arguments for this.

Business Idea:

Our business idea is to establish a joint venture for large scale oil extraction, which sells the following products: Edible oil/packaging; Margarine; Rice bran products; Soybean products ("Tofu", soymilk, soysauce, etc.); New seeds (licensed from foreign agro-industry).

Entry Strategy

Oil extraction mills and food processing, packaging industries are now under control of the Ministry of Agriculture and the Ministry of Food Processing Industries respectively. The National Dairy Development Board (NDDB), which is controlled by the Government, is participating in this field. The strategy is designed to get license approval from the government to build a joint venture. These are factors to be considered in a more detailed feasibility study.

- Potential for "Co-existence": A large milling operation (which would have certain political attraction for a state government) is to be established. The state government could be taken as one of the equity shareholders.
- Market potential of "export-oriented/or buy-back": "Margarine," "Long-life-packaged Tofu," "Soymilk," "Soysauce" are to be produced for export primarily to Japan and then other Asian markets, EEC and North America.
- Levels of "high-tech/or know-how": Various sophisticated packaging equipments will be introduced.
  Various new hybrid seeds would be licensed from foreign agro-industries.
- Other Condition: It is necessary to negotiate, adjust, and cooperate with NDDB, possibly in the form of equity participation.

The scope of the above project will decide the level of investment. However, an investment on the order of $10 million (US) could provide a foreign investor with satisfactory capacity. A consortium of firms has recently lead the way in successful application and license approval of soybean processing. KIBUN, a Japanese firm, is the technical collaborator with an Indian partner.

4. WATER PURIFICATION EQUIPMENT

1. Today in India, water-born diseases are a serious problem, as shown by the high incident of childhood deaths (9.9%) resulting from diarrhea diseases brought on by impure drinking water.

Polluted water in rivers, subsurface aquifers, and the sea caused by sewage, sludge, chemical fertilizers, and toxic effluent without treatment accelerates environmental incidents and contributes to proliferation of disease.

A wide range of water-purification systems are currently used in India for agricultural, industrial and portable use. Different purification methods are applied for waste water treatment such as chemicals, chlorification, filter presses, desalinization, reverse osmosis, biotechnology, etc.

2. PRESENT SITUATION OF WATER PURIFICATION EQUIPMENT FOR HOME USE

Company Name/Ownership products	Year Ended	Installed capacity	Production & (Purchases)	Capacity Util. (%)	Net addition to stocks	Sales & (Internal) Quantity	Rs. Crores	Market Share (%)
1. Eureka Forbes Ltd. Tata (Aquaguard)	March 1989		17,839.00		910.00	16,929.00	4.00	52.4
2. A.P. Industrial Components Ltd.	March 1989	18,000.00	27,110.67	151	586.00	26,329.33	3.64	47.6
3. Hyderabad Allwyn Ltd. Government (	Dec. 1988		(2,12)			2.12	Neg	Neg
4. Ion Exchange (India) Ltd Entrepreneur (Zero-B)	Operation started 1989.	(eager to expand market share)					Neg	Neg
5. Thermax Entrepreneur	Operation started 1990	(eager to expand market share)					Neg	Neg
		18,000.00	27,110.67	151	1,496.00	43,260.45	7.64	100.00
			(17,841.12)					

Actual use of this equipment is not common throughout India; it is concentrated in specific regions like New Delhi, Bombay, Calcutta, and other big, urban cities. Development in this field is now just starting, touching only few of the other urban cities, and hardly any of the rural areas consisting of 700,000 villages throughout India. In order to prevent future water pollution and the relevant diseases, the use of water purification measures in these areas is essential.

In cities, even if water is supplied to each family after chlorination treatment by its Municipal Center, it is often still contaminated and can cause disease. Therefore 130 million middle class Indians have a real incentive to purchase residential equipment for water purification to prevent these water-born diseases.

Business idea:

1. Supply home-use water purification equipment for middle-class families as primary consumers and hotels, hospitals, offices and other public facilities as secondary consumers. In the near future there will also be a big market in treatment as part of the food processing industries. Villages are a large untapped market; as more villages are electrified, they increase market size. For the 200,000 villages still without electricity, non-electric purification equipment can be applied.

2. Present Situation of Water Purification Equipment for Home Use (SEE CHART)

3. Difference of principal characteristics of the products.

1)"AQUAGUARD" by EUREKA FORBES LTD. is only one using the Ultra Violet Rayon Filteration process combined with sand-bed filteration and charcoal filteration, especially for home use. (EUREKA FORBES LTD. could supply a bigger capacity for offices, factories, etc.).

Price:	Approx. US $120
Size:	360 mm/300mm/100mm
Weight:	6 kg.
Power Consumption:	0.2 units/working
Output:	1 litre per min.
Integration:	100% indigenous procurement

2) Zero-B by Ion Exchange (India) Ltd. is a typical application of iodine-releasing resin filteration process.

Price:	US $3.70 (portable device carry around anywhere, anytime)
	Variable to $115.50 (for use on-line in offices, factories and homes too)
Power Consumption:	0

Output:	From utilizable capacity of 700 litres up to 30,000 litres, then iodized resin to be replaced
Integration:	All indigenous except small quantity of special chemicals

4. Conclusion

A practical application by UV rayon filteration to eliminate all the bacteria and viruses is considered preferable to iodine-releasing resin filteration process, judging from the direct discussions with the fabricators. Tata groups hold the largest market share, primarily in the urban market. It is assumed they would maintain share in the future market. The potential market in this field is very large and prosperous from urban to rural. The government and international organizations (UNICEF, WHO), would actively support any effort to widen the application of this equipment.

Entry options for consideration after market study is complete.

1) In case a new technology, more effective than that of "Aquaguard," or similar technology, can be developed, a collaboration with a potential Indian partner is recommended. It should be a Joint Venture to compete with "Aquaguard" in urban areas and start up new markets in rural areas.

2) Fabrication using indigenous materials is essential to competitiveness in the market and to Indian Government approval. In the rural areas, zero-B types of iodine releasing resin filteration will be more apprpriate for villages without electricity. Therefore plans should be made to fabricate both types of equipment in parallel, if possible.

3) Another key element is service and distribution. The barrier to additional penetration is not cost, but capacity to service units after they are installed. This could become a business by itself, especially in villages. Units require service 3 to 4 times a year. This would guarantee employment for substantial numbers of people regardless of product type and enhance the appeal of the products on a local level.

4) Our overall recommendation is to form a joint venture partnership with India's pump distributor, KIRKOLAR, who could provide immediate access to rural areas and provide some technical service capacity. It would also be possible to join forces with a well-established Indian partner with an existing distribution network throughout India in both rural and urban areas. Potential partners of this type include Hindustan Lever, Godfrey & Godfrey.

TORU ARAI - JAPAN AIRLINES

DAVE LARKIN - HONEYWELL

GORAN MALM - SKF

UMBERTO MORTARI - MERCK

HIRO OKUBO - HONDA

JUNICHI YOSHINARI - C. ITOH

I . EXCELLENT. on Target
. rich . DATA . but . ~~middle~~ middle class
communication stress?

. Very Readable
. shorter than Ind. A
- Good selection of Industry
. Quite
interesting till last lin (although the last re

II . JV. investment profile.
water purification : / . deeper analysis
profitability is
(especially EBIT

- why we are less desirable than Europe
Japan

- Caste system could impact : Business.
Woman descrimination background.

III - Amount of money from MNC's to Indi
(% of margin)
~~issue~~ . global . citizenship issues?

- DOM / INT. Competitive situation. ~~of~~ analy
→ influence IND. economy.

- real openness of India towards wes
: Frank relationship (optimistic view)
or "pick the cherry"?

- People is the 2nd ~~@~~ greatest assets in
~~absolute~~ absolute number but what is the real qty of
usable people. (the most interesting try to work abroad

II - what the Indian view on Global citizenship.

- Selected industries are. GCT. but
(DOME or INT.) what about profitability
market unclear

- what is the perception of India's future.
(tear)
politic . economic . social → guess.

- what is the real involvement of population
in the economic progress of India.